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Marine Ichthyoplankton Data From the Canadian Beaufort Sea Shelf, July and September, 1984

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Winnipeg, Manitoba R3T 2N6

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PREFACE

This study was funded by the Northern Oil and Gas Action Program (NOGAP), through the Department of Fisheries and Oceans, Central and Arctic Region. It is one of a series of projects being executed under NOGAP B.2, to provide background data for assessing the implications of hydrocarbon development and production on critical estaurine and marine habitats of the Canadian Arctic Coastal Shelf. This document constitutes NOGAP Report B2.41.

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ABSTRACT

Chiperzak, D.B., G.E. Hopky, M.J. Lawrence, and G. Lacho. 1990. Marine ichthyoplankton data from the Canadian Beaufort Sea Shelf, July and September, 1984. Can. Data Rep. Fish. Aquat. Sci. 779: v + 45 p.

Ichthyoplankton were collected from 760 μm Wisconsin net and 500 μm neuston net plankton tows in July and September of 1984 along the Canadian Beaufort Sea Shelf. A total of 1408 larval fish representing six families and nine species groups were caught in the 34 plankton tows. Arctic cod (Boreogadus saida) was the most abundant larval fish species caught both in the Wisconsin and neuston tows.

Standard length, total length, and wet-weight measurements were made on 1123 larval fish of which 1097 were Arctic cod. The July mean standard length for Arctic cod was 13.4 mm with a standard deviation of 2.7 mm, and a mean weight of 0.015 g with a standard deviation of 0.010 g. In September, Arctic cod mean standard length was 26.3 mm, standard deviation of 3.8 mm, and the mean weight was 0.130 g with a standard deviation of 0.058 g.

A total of 126 fish were analyzed for stomach contents of which four were found to be empty. Copepods were the most frequently occurring food item in all four species groups analysed with Calanoida being the most frequently occurring and the most abundant food item for both B. saida and the fourhorn sculpin, Myoxcephalus quadricornis.

Nine stomachs, all from B. saida, contained the parasite (Trematoda: Hemiuridae).

Key words: Arctic; coastal waters; ichthyoplankton; larval fishes; Boreogadus saida; Arctic cod; distribution; diet.

RÉSUMÉ

Chiperzak, D.B., G.E. Hopky, M.J. Lawrence, and G. Lacho. 1990. Marine ichthyoplankton data from the Canadian Beaufort Sea Shelf, July and September, 1984. Can. Data Rep. Fish. Aquat. Sci. 779: v + 45 p.

En juillet et septembre 1984, on a récolté l'ichtyoplancton à l'aide de filets Wisconsin (760 µm) et de filets à neuston (500 µm) le long de la partie canadienne de la plate-forme de la mer de Beaufort. Trente-quatre traits ont permis de capturer un total de 1408 larves de poisson représentant six familles et neuf groupes d'espèces. Parmi les larves de poisson capturées, la saida franc (Boreogadus saida) a été l'espèce la plus abondante et ce, indépendamment du filet utilisé (à neuston ou Wisconsin).

Des mesures de la longueur standard, de la longueur totale et du poids frais ont été effectuées pour 1123 larves de poisson, dont 1097 de saida franc. En juillet, la longueur standard moyenne des larves de saida franc était de 13,4 mm, avec un écart-type de 2,7 mm, et le poids moyen était de 0,015 g, avec un écart-type de 0,010 g. en septembre, la longueur standard moyenne des larves de saida franc était de 26,3 mm, avec un écart-type de 3,8 mm, et le poids moyen était de 0,130 g, avec un écart-type de 0,058 g.

Le contenu stomacal a été analysé chez 126 poissons; quatre de ces poissons avaient l'estomac vide. Les copépodes constituaient l'article alimentaire le plus fréquent dans les quatre groupes d'espèces analysés. Calanoida était l'article alimentaire le plus fréquent et le plus abondant chez B. saida et chez Myoxcephalus quadricornis (chaboisseau à quatre cornes).

Neuf estomacs, appartenant tous à des poissons de l'espèce B. saida, étaient parasités (Trematoda: Hemiuridae).

Mots-clés: Arctique; eaux côtières; ichtyoplancton; larves de poisson; Boreogadus saida; saida franc; distribution; régime alimentaire.

INTRODUCTION

Icthyoplankton data presented in this report were collected as part of the Beaufort Shelf Fish Habitat Research Subproject (B.2.1). This Subproject was one component of the Critical Arctic Estuarine and Marine Habitat Project (B.2) of the Northern Oil and Gas Action Program (NOGA-P). The objectives of the subproject were:

1. To conduct research towards identifying, in spatial and temporal terms, areas of significance to marine and estaurine fish species of the Beaufort Sea Shelf (from Herschel Island to Cape Bathurst) (Fig. 1).

2. To characterize these areas of important marine and estaurine habitat in terms of community composition, and in terms of chemical, physical and biological parameters.

3. To describe the feeding habits of selected species of pelagic and demersal fish species of the Beaufort Sea Shelf in relation to habitat and season (open water vs ice covered).

Ichthyoplankton samples were collected for four consecutive summers in the Beaufort Sea beginning in 1984. The data in this report are from 1984. Temperature, salinity and density data for 1984 are reported by Hopky et al. (1986). Stomach data for Boreogadus saida (Arctic cod) captured from otter trawl tows done in 1984 are reported by Lacho (1986).

Past studies along the Canadian Beaufort Sea Shelf have had their emphasis on juvenile and adult fish (Galbraith and Hunter 1975), and have been mostly nearshore (Kendel et al. 1975; Percy 1975; Lawrence et al. 1984; Bond and Erickson 1989). The study of larval fish in the Canadian Beaufort Sea has been to date largely ignored, except for Tuktoyaktuk Harbour which has been reported on by Ratynski (1983); yet the larval fish stage is an important time in any fish population because the mortality rate at this stage is so high that even small increases in this rate can severely affect a year class strength (Bagenal and Braum 1978).

Sampling was done on board the chartered M.V. Sequel, a 13 m, wooden hull vessel. Due to the size of the vessel and the nature of its hull, site selection for sampling stations was often at the mercy of ice and weather conditions present at the time of sailing.

METHODS

Coordinates for sampling stations (Table 1) were obtained using a combination of radar (Furuno Model CR240) fixes to shore, bathymetric charts and a Magnavox Model MX4102 satellite navigator with a nominal accuracy of $\pm$ 0.1 km.

Plankton samples were collected between July 14 to 25 and September 7 to 9 of 1984 (Table 2). Stations sampled are shown in Fig. 2.

Midwater plankton collections were made using a Wisconsin design plankton net with an opening diameter of 0.5 m and a 763 µm Nitex mesh net. A General Oceanic flowmeter, model #2030, with a standard rotor was affixed to the centre of the opening. One horizontal tow of 20-40 minutes duration was made at each station. Tow depth was calculated by taking the cosine of the wire angle multiplied by the length of wire spooled out. Ship speed was held at approximately 3 knots for the duration of the tow.

One surface tow using a neuston sampler was made at each station except at stations 84A11 and 84A12 where no surface tows were conducted. The neuston sampler has a square opening of 45 cm x 45 cm with a net constructed of 500 µm Nitex mesh. A more detailed description of the neuston sampler used is given by Mason and Phillips (1986). A General Oceanic flowmeter, model #2030, with a standard rotor was affixed to the opening of the neuston sampler offset 17 cm vertically from the center of the mouth opening. For volumetric calculations an opening of 45 cm x 35 cm was used, as the top 10 cm of the sampler rode out of the water during the tow periods. The sampler was towed 30 m off the starboard side of the vessel in front of the vessel wake using a polyethylene rope. Ship speed was approximately 4-5 knots for the duration of the tow.

Densities were calculated as the number of fish per 100 m^3 of water filtered through either the Wisconsin or neuston nets.

All plankton samples were preserved in a solution of seawater and 5% non-buffered formalin. Larval fish were extracted later in the laboratory, placed in 70% ethanol and identified to the lowest possible taxon.

All larval fish excepting those extracted for stomach analysis or those in too poor a condition for further examination were measured for standard length, total length and wet

weight. Length measurements were made using a Nikon Type 102 dissecting microscope and a small ruler marked in 1 mm graduations. Measurements were made to the nearest ± 0.5 mm. Wet weights were obtained by first blotting the larval fish with a paper towel and then weighing them on a Mettler PC440 digital scale with an accuracy of ± 0.001 g. No adjustments for shrinkage were made in any of the measurements.

Larval fish for stomach analysis were arbitrarily selected to provide a representative cross-section of samples by station and season. These fish were first measured for standard length, rounded to the nearest ± 0.5 mm, using the micrometer eyepiece of a Wild MSA dissecting microscope. The stomach was then removed or in cases where the stomach had not yet fully formed, the entire intestine was taken. A code (Table 3) was assigned to each stomach or intestine to indicate the degree of fullness and the content's state of digestion. Stomach contents were then identified and enumerated. Parasites found in larval fish stomachs were identified and enumerated whenever possible.

RESULTS

A total of 1408 larval fish consisting of nine species groups representing six families (Table 4) were captured from plankton tows in July and September of 1984. Eighteen Wisconsin tows were made (Table 2), capturing 1186 larval fish of which eight species groups in five families were represented. Only 16 neuston tows were made (Table 2), capturing 222 larval fish of which three species groups in three families were represented.

Boreogadus saida was the most abundant species found in Wisconsin tow catches making up 93.0% of the catch in July and 95.8% in September (Table 5). B. saida was also the most frequently occurring species found in Wisconsin tow catches being caught in 66.7% of the catches in July and 100% of the catches in September. All Gadidae captured at station 84B09 (Table 6) were too badly damaged or decomposed to positively identify past family level but are probably B. saida and thus would increase B. saida's percent by number and frequency of occurrence for the month of July. The staghorn sculpin, Gymnocanthus tricuspis, was the next most abundant species captured in Wisconsin tows making up 2% of the catch in July and 4.2% in September (Table 5). It occurred in 50% of the catches both in July and September. Although six other species were caught intermittently through July, only B. saida and G. tricuspis were caught in Wisconsin tows during September (Table 6 - "B" stations after 84A12).

Densities (number • 100 m^{-3}) of fish by species and station for Wisconsin tow catches are given in Table (7).

B. saida was also the most abundant species captured using neuston tows, making up 99.1% of the catch in July and 50% of the catch in September (Table 8). Note that only two fish were caught by the six neuston tows done in September (Table 9 - "B" stations after 84A12). The second fish was an unidentified Cottidae captured at station 84B11. In July, B. saida occurred in 70% of the neuston catches. Only two other species were caught in July by the neuston sampler, one Osmerus mordax and one Myoxcephalus quadricornis both of which were captured at station 84A01 (Table 9).

Densities (number • 100 m^{-3}) of fish by species and station for all neuston tows are given in Table 10.

Standard length, total length and wet weight measurements were taken on 1123 larval fish (Table 11). Only one specimen each of O. mordax, Anisarchus medius, Triglops pingeli and Aspidophoroides olriki were measured (Table 11). Virtually all specimens sampled were B. saida, G. tricuspis or M. quadricornis.

B. saida captured in July had a mean standard length of 13.4 mm with a range of 5.5 to 30.0 mm and a standard deviation of 2.7 while in September the mean standard length was 26.3 mm with a range from 19.5 to 34.0 mm and a standard deviation of 3.8 mm (Table 12). Mean wet weight of B. saida in July was 0.015 g with a standard deviation of 0.010 g while in September the mean wet weight was 0.130 g with a standard deviation of 0.058 g.

G. tricuspis in July had a mean standard length of 13.6 mm with a range of 11.5 to 15.5 mm and a standard deviation of 1.6 (Table 13). In September G. tricuspis had a mean standard length of 20.5 mm with a range from 20.0 mm to 21.0 mm and a standard deviation 0.5 mm. The mean wet weight in July was 0.020 g with a standard deviation of 0.009 g and in September the mean wet weight was 0.116 g with a standard deviation of 0.011 g.

Ten M. quadricornis, all in July from station 84A11, were measured (Table 14). The mean standard length was 13.3 mm with a range of 7.0 to 15.5 mm and a standard deviation of 2.3 mm. The mean wet weight was 0.012 g with a range from <0.001 to 0.021 g and a standard deviation of 0.006 g.

A total of 126 fish representing four species groups were examined for their stomach content (Table 15). Of these 99 were B. saida

of which three had empty stomachs. As well, 13 G. tricuspis, six M. quadricornis and four Liparis sp. were examined and all exhibited varying degrees of fullness except one M. quadricornis whose stomach was empty.

A detailed list of food items with totals and comments for the B. saida specimens examined is given in Table 16, for M. quadricornis in Table 17, for G. tricuspis in Table 18 and for Liparis sp. in Table 19. Comment codes are defined in Table 20.

Copepods were the most dominant food group found in the stomachs of all four fish species groups examined (Tables 21 - 24). Calanoids were the most frequently observed food item as well as being the most numerous food item found in both B. saida and M. quadricornis stomachs (Tables 21 and 22).

In B. saida (Table 21), unidentified Calanoida occurred in 83.6% of the stomachs analysed from July and occurred in all stomachs analysed from September. Unidentified Calanoida made up 61.6% by number from July and 63.8% by number from September of food items counted. Pseudocalanus minutus was the next most frequently occurring food item at 26.9% from July as well as the next most numerous food item counted at 31.9% by number, while in September Arcarti clausi occurred slightly more often than P. minutus (59.4% as compared to 56.3%) but P. minutus was the next most abundant species found after Calanoida at 26.2% as compared to A. clausi at 2.2%.

Only copepods were found in the six M. quadricornis stomachs examined (Table 22). Calanoida occurred the most frequently in 50% of the stomachs and was the most abundant food item making up 84.8% by number.

P. minutus was the most frequently occurring food item found in G. tricuspis stomachs, occurring 84.6% of the time, but the diatom Coscinodiscus sp. contributed the greatest percent by number at 49.0% (Table 23). In the four Liparis sp. stomachs the copepod P. minutus occured the most frequently, being found in 75% of the stomachs analysed and made up the greatest percent by number at 87% (Table 24).

Nine fish, all B. saida, contained the parasite (Trematoda: Hemiuridae) in their stomachs (Table 25).

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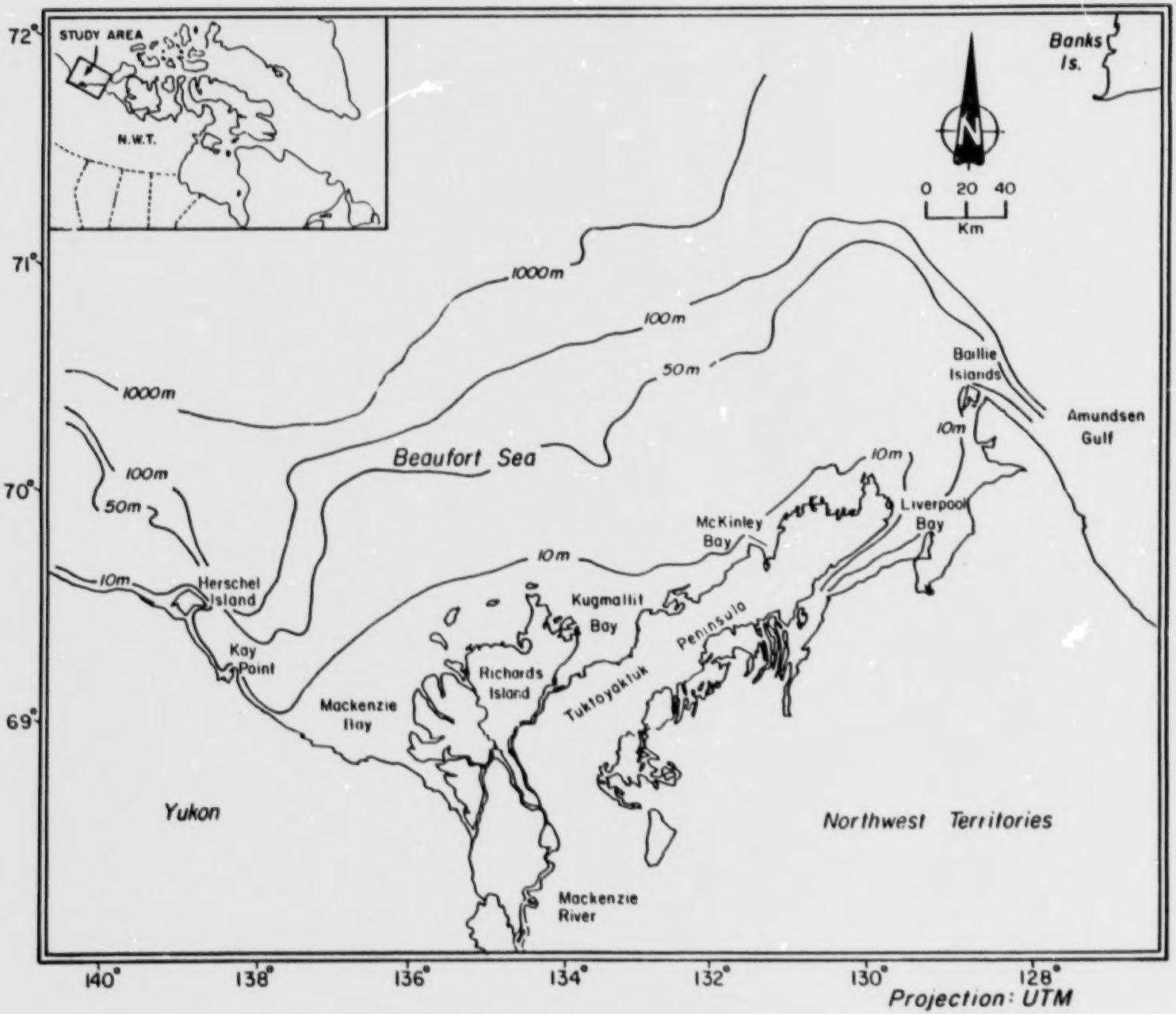

Fig. 1. Location and detailed map of Beaufort Sea study area.

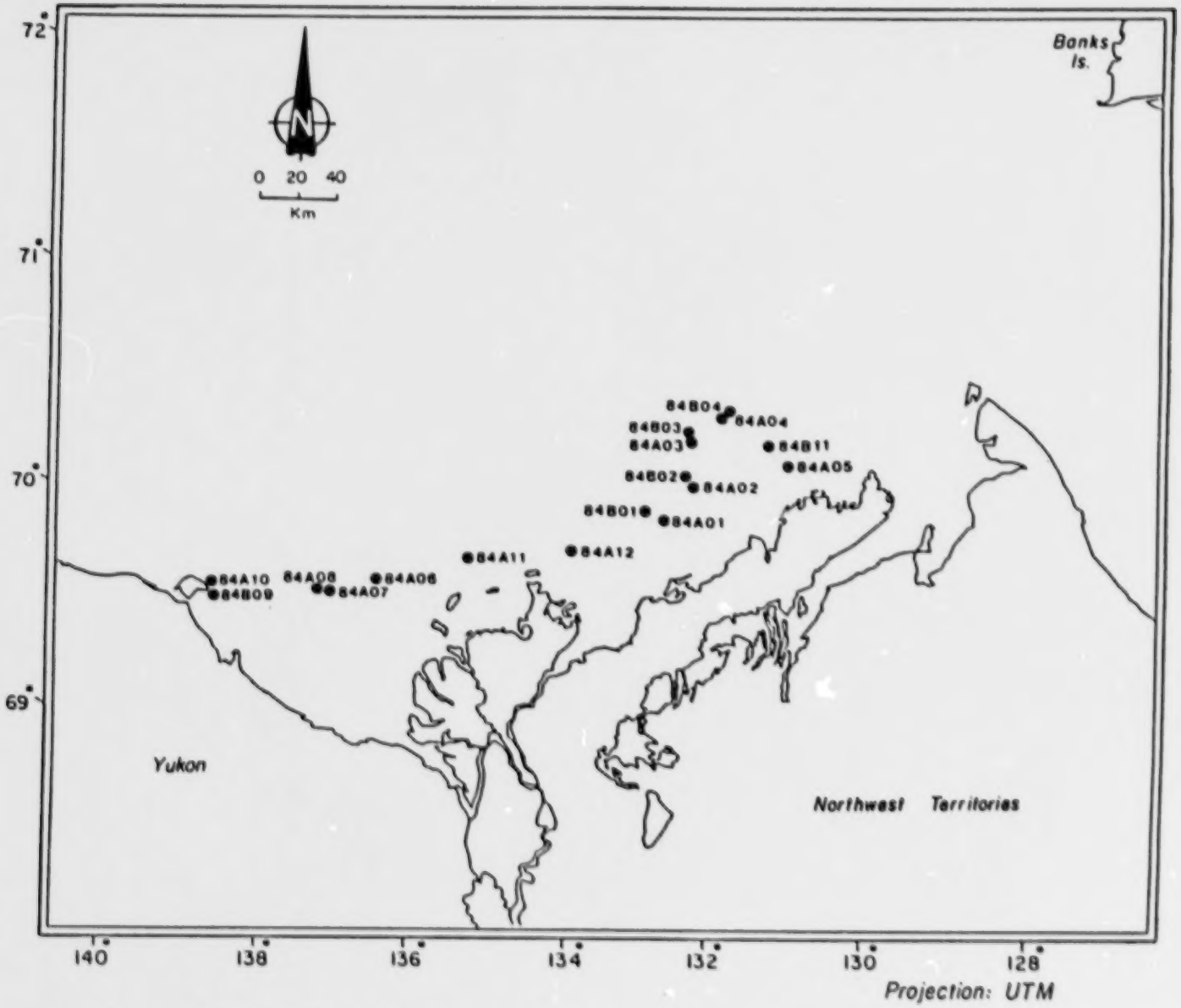

Fig. 2. Stations sampled in July and September, 1984.

Table 1. Summary of plankton stations sampled in the Beaufort Sea, 1984.

Station	Latitude Deg	Latitude Min	Longitude Deg	Longitude Min	Date Sampled	Time GMT*	Total Depth (m)
84A01	69	49.5	132	37.0	Jul 14	0100	9
84A02	70	2.0	132	20.0	Jul 15	1625	20
84A03	70	12.4	132	21.6	Jul 15	2045	30
84A04	70	17.3	131	53.5	Jul 15	2300	33
84A05	70	6.4	131	0.5	Jul 16	0600	12
84A06	69	34.1	136	22.5	Jul 23	2000	10
84A07	69	33.2	137	0.1	Jul 23	2335	17
84A08	69	33.6	137	6.4	Jul 23	0220	34
84B09	69	31.7	138	44.6	Jul 24	2000	14
84A10	69	36.5	138	49.0	Jul 24	2330	36
84A11	69	40.0	135	14.0	Jul 25	1200	5
84A12	69	43.5	133	55.0	Jul 25	1650	4
84B01	69	51.8	132	54.0	Sep 7	2300	12
84B02	70	4.0	132	26.0	Sep 7	0335	24
84B03	70	13.0	132	22.0	Sep 8	1900	34
84B04	70	20.0	131	50.0	Sep 8	2325	36
84B05	70	6.0	131	0.0	Sep 9	1640	12
84B11	70	13.0	131	16.0	Sep 9	2100	25

* GMT - Greenwich Mean Time.

Table 2. Plankton summary of Wisconsin and neuston tows conducted in the Canadian Beaufort Sea, July and September, 1984.

Plankton Sample Number	Station	Date	Gear Type	Mesh Size (um)	Tow Type	Maximum Tow Depth (m)	Volume Filtered (m^3)
1	84A01	Jul 14	NEUST	500	HOR	0.0	693
2	84A01	Jul 14	WISCN	760	HOR	6.2	531
3	84A02	Jul 15	NEUST	500	HOR	0.0	488
4	84A02	JUL 15	WISCN	760	HOR	13.7	240
5	84A03	Jul 15	WISCN	760	HOR	10.2	427
6	84A03	Jul 15	NEUST	500	HOR	0.0	544
7	84A04	JUL 15	NEUST	500	HOR	0.0	409
8	84A04	Jul 15	WISCN	760	HOR	11.3	370
9	84A05	Jul 16	WISCN	760	HOR	5.1	428
10	84A05	Jul 16	NEUST	500	HOR	0.0	538
11	84A06	Jul 23	NEUST	500	HOR	0.0	515
12	84A06	Jul 23	WISCN	760	HOR	5.1	361
13	84A07	Jul 23	NEUST	500	HOR	0.0	498
14	84A07	Jul 23	WISCN	760	HOR	13.7	448
15	84A08	Jul 23	NEUST	500	HOR	0.0	594
16	84A08	Jul 23	WISCN	760	HOR	11.1	477
17	84B09	Jul 24	NEUST	500	HOR	0.0	321
18	84B09	Jul 24	WISCN	760	HOR	10.2	248
19	84A10	Jul 24	NEUST	500	HOR	0.0	497
20	84A10	Jul 24	WISCN	760	HOR	8.2	383
21	84A11	Jul 25	WISCN	760	HOR	N/A*	N/A
22	84A12	Jul 25	WISCN	760	HOR	4.0	555
29	84B01	Sep 07	NEUST	500	HOR	0.0	532
30	84B01	Sep 07	WISCN	760	HOR	4.7	395
31	84B02	Sep 07	NEUST	500	HOR	0.0	637
32	84B02	Sep 07	WISCN	760	HOR	11.0	483
33	84B03	Sep 08	NEUST	500	HOR	0.0	567
34	84B03	Sep 08	WISCN	760	HOR	11.0	497
35	84B04	Sep 08	NEUST	500	HOR	0.0	496
36	84B04	Sep 08	WISCN	760	HOR	11.7	392
37	84B05	Sep 09	NEUST	500	HOR	0.0	579
38	84B05	Sep 09	WISCN	760	HOR	7.5	442
39	84B11	Sep 09	NEUST	500	HOR	0.0	609
40	84B11	Sep 09	WISCN	760	HOR	12.4	534

* N/A = Not available

Table 3. Stomach fullness codes used in Table 15.

Code	Description
0	Empty
1	1/3 full, digested
2	1/3 full, good condition
3	2/3 full, digested
4	2/3 full, good condition
5	Full, digested
6	Full, good condition

Table 4. Scientific and common names of fishes captured in the Canadian Beaufort Sea Shelf, 1984.

Scientific Name	Common Name
Family Osmeridae	
Osmerus mordax (Mitchill)	Rainbow smelt
Family Gadidae	
Boreogadus saida (Lepechin)	Arctic cod
Eliginus gracilis (Tilesius)	Saffron cod
Family Cottidae	
Myoxcephalus quadricornis (Linnaeus)	Fourhorn sculpin
Gymnocanthus tricuspis (Reinhardt)	Staghorn sculpin
Triglops pingeli Reinhardt	Ribbed sculpin
Family Cyclopteridae	
Liparis sp.	Snailfish
Family Stichaeidae	
Anisarchus medius (Reinhardt)	Stout eelblenny
Family Agonidae	
Aspidophoroides olriki Lutken	Arctic alligatorfish

Table 5. Number, percent by number, and frequency of occurrence for larval fish captured by Wisconsin tows in the Beaufort Sea Shelf during July and September, 1984.

Species	JULY			SEPT		
	Number	%	Freq Occ	Number	%	Freq Occ
Gadidae (unid)	24	2.2	8.3	0	0	0
B. saida	1037	93.0	66.7	68	95.8	100
E. gracilis	1	0.1	8.3	0	0	0
Cottidae (unid)	2	0.2	16.7	0	0	0
G. tricuspis	22	2.0	50.0	3	4.2	50
M. quadricornis	16	1.4	41.7	0	0	0
T. pingeli	1	0.1	8.3	0	0	0
A. olriki	1	0.1	8.3	0	0	0
Liparis sp.	8	0.7	33.3	0	0	0
A. medius	1	0.1	8.3	0	0	0
Unid. fish	2	0.2	16.7	0	0	0

Table 6. Larval fish catch summary for Wisconsin tows on the Beaufort Sea Shelf, 1984.

SPECIES	STATIONS																		
	84A01	84A02	84A03	84A04	84A05	84A06	84A07	84A08	84B09	84A10	84A11	84A12	84B01	84B02	84B03	84B04	84B05	84B11	TOTAL
O. mordax																			0
Gadidae (unid)									24										24
B. saida		412	16	154	10	314	64	43		24			1	26	20	19	1	1	1105
E. gracilis	1																		1
Cottidae (unid)										1		1							2
G. tricuspis		14	1	3		2		1		1				1		1		1	25
M. quadricornis	2	1						1		2	10								16
T. pingelli								1											1
A. olriki				1															1
Liparis sp.		3					1	1		3									8
A. medius		1																	1
Unid. fish	1	1																	2
TOTAL	4	432	17	158	10	316	65	47	24	31	10	1	1	27	20	20	1	2	1186

Table 7. Larval fish number·100 m^{-3} for Wisconsin tows on the Beaufort Sea Shelf, 1984.

SPECIES	STATIONS																	
	84A01	84A02	84A03	84A04	84A05	84A06	84A07	84A08	84B09	84A10	84A11	84A12	84B01	84B02	84B03	84B04	84B05	84B11
O. mordax																		
Gadidae (unid)									9.7									
B. saida		171.7	3.7	41.6	2.3	87.0	14.3	9.0		6.3			0.3	5.4	4.0	4.8	0.2	0.2
E. gracilis	0.2																	
Cottidae (unid)										0.3		0.2						
G. tricuspis		5.8	0.2	0.8		0.6		0.2		0.2				0.2		0.3		0.2
M. quadricornis	0.4	0.4						0.2		0.5	*							
T. pingelli								0.2										
A. olriki				0.2														
Liparis sp.		1.3					0.2	0.2		0.8								
A. medius		0.4																
Unid. fish	0.2	0.4	0.7															
TOTAL	0.8	180.0	4.6	42.6	2.3	87.6	14.5	9.8	9.7	8.1		0.2	0.3	5.6	4.0	5.1	0.2	0.4

* - Not available

Table 8. Number, percent by number and frequency of occurrence of larval fish captured by neuston tows on the Beaufort Sea Shelf during July and September, 1984.

Species	JULY			SEPT		
	Number	%	Freq Occ	Number	%	Freq Occ
O. mordax	1	0.5	10.0	0	0	0
B. saida	218	99.1	70.0	1	50	16.7
Cottidae (unid.)	0	0.0	0.0	1	50	16.7
M. quadricornis	1	0.5	10.0	0	0	0

Table 9. Larval fish catch summary for neuston tows on the Beaufort Sea Shelf, 1984.

SPECIES	STATIONS																
	84A01	84A02	84A03	84A04	84A05	84A06	84A07	84A08	84B09	84A10	84B01	84B02	84B03	84B04	84B05	84B11	TOTAL
O. mordax	1																1
Gadidae (unid)																	0
B. saida			5	166	1	2	26	10		8		1					219
E. gracilis																	0
Cottidae (unid)																1	1
G. tricuspis																	0
M. quadricornis	1																1
T. pingelli																	0
A. olriki																	0
Liparis sp.																	0
A. medius																	0
Unid. fish																	0
TOTAL	2	0	5	166	1	2	26	10	0	8	0	1	0	0	0	1	222

Table 10. Larval fish number·100 m^{-3} for neuston tows on the Beaufort Sea Shelf, 1984.

SPECIES	STATIONS															
	84A01	84A02	84A03	84A04	84A05	84A06	84A07	84A08	84B09	84A10	84B01	84B02	84B03	84B04	84B05	84B11
O. mordax	0.1															
Gadidae (unid)																
B. saida			0.9	40.6	0.2	0.4	5.2	1.7		1.6		0.2				
E. gracilis																
Cottidae (unid)																
G. tricuspis																
M. quadricornis	0.1															
T. pingelli																
A. olriki																
Liparis sp.																
A. medius																
Unid. fish																
TOTAL	0.2	0.0	0.9	40.6	0.2	0.4	5.2	1.7	0.0	1.6	0.0	0.2	0.0	0.0	0.0	0.2

Table 11. Standard and total lengths, and wet weight of larval fish captured in the Beaufort Sea, 1984.

PLANKTON SAMPLE NUMBER	FISH SAMPLE NUMBER	SPECIES	STANDARD LENGTH (mm)	TOTAL LENGTH (mm)	WET WEIGHT (g)
1	40	O. mordax	9.0	9.0	0.002
4	270	B. saida	15.5	17.0	0.028
4	271	B. saida	13.0	14.0	0.015
4	273	B. saida	12.0	13.0	0.009
4	274	B. saida	11.0	12.0	0.007
4	275	B. saida	15.0	16.0	0.023
4	277	B. saida	15.0	16.0	0.018
4	278	B. saida	10.0	11.0	0.007
4	281	B. saida	13.0	14.0	0.015
4	282	B. saida	12.5	13.5	0.013
4	283	B. saida	14.0	15.0	0.019
4	284	B. saida	13.5	14.5	0.021
4	285	B. saida	13.0	14.0	0.017
4	288	B. saida	9.5	10.5	0.007
4	289	B. saida	12.0	13.0	0.006
4	291	B. saida	10.0	11.0	0.006
4	292	B. saida	17.5	20.0	0.040
4	293	B. saida	13.5	14.5	0.019
4	294	B. saida	10.0	11.0	0.006
4	295	B. saida	17.0	18.0	0.030
4	513	B. saida	16.0	17.0	0.025
4	514	B. saida	16.0	17.0	0.031
4	515	B. saida	12.0	13.0	0.009
4	516	B. saida	14.0	15.0	0.024
4	517	B. saida	13.5	14.5	0.016
4	518	B. saida	19.5	20.5	0.024
4	519	B. saida	5.5	6.5	0.007
4	520	B. saida	15.5	16.5	0.025
4	521	B. saida	12.0	13.0	0.012
4	522	B. saida	11.0	12.0	0.010
4	523	B. saida	12.0	13.0	0.013
4	524	B. saida	17.0	18.5	0.036
4	525	B. saida	14.5	15.5	0.019
4	526	B. saida	15.0	16.0	0.026
4	527	B. saida	12.5	13.5	0.014
4	528	B. saida	14.5	15.5	0.022
4	529	B. saida	12.0	13.0	0.011
4	530	B. saida	13.5	14.5	0.011
4	531	B. saida	12.0	13.0	0.010
4	532	B. saida	14.0	15.0	0.013
4	533	B. saida	12.0	13.0	0.011
4	534	B. saida	14.0	15.0	0.020
4	535	B. saida	13.0	14.0	0.018
4	536	B. saida	12.0	13.0	0.009
4	537	B. saida	14.0	15.0	0.017
4	538	B. saida	10.0	10.5	0.006
4	539	B. saida	12.0	13.0	0.013
4	540	B. saida	12.0	13.0	0.013
4	541	B. saida	11.5	12.5	0.010
4	542	B. saida	13.0	14.0	0.014
4	543	B. saida	13.0	14.0	0.012
4	544	B. saida	11.5	12.5	0.009
4	545	B. saida	11.0	12.0	0.006
4	546	B. saida	11.0	12.0	0.007
4	547	B. saida	12.0	13.0	0.011
4	548	B. saida	12.5	13.5	0.011
4	549	B. saida	11.0	12.0	0.011
4	550	B. saida	13.0	14.0	0.012
4	551	B. saida	16.0	17.0	0.029
4	552	B. saida	13.0	14.0	0.014
4	553	B. saida	12.0	13.0	0.008
4	554	B. saida	12.5	13.5	0.013
4	555	B. saida	11.0	12.0	0.007
4	556	B. saida	12.0	13.0	0.009
4	557	B. saida	13.0	14.0	0.014
4	558	B. saida	14.0	15.0	0.018
4	559	B. saida	12.0	13.0	0.010
4	560	B. saida	11.0	12.0	0.013
4	561	B. saida	12.5	13.5	0.015
4	562	B. saida	11.0	12.0	0.006
4	563	B. saida	12.0	13.0	0.010
4	564	B. saida	15.5	16.5	0.028
4	565	B. saida	11.5	12.5	0.011
4	566	B. saida	12.0	13.0	0.010
4	568	B. saida	12.0	13.0	0.011
4	569	B. saida	12.0	13.0	0.009
4	570	B. saida	12.0	13.0	0.012
4	571	B. saida	10.5	11.5	0.008
4	572	B. saida	14.0	15.0	0.018
4	573	B. saida	11.0	12.0	0.009
4	574	B. saida	12.0	13.0	0.009
4	575	B. saida	14.0	15.0	0.018
4	576	B. saida	9.5	10.0	0.007
4	577	B. saida	11.0	12.0	0.005
4	578	B. saida	12.0	13.0	0.012
4	795	B. saida	16.0	17.0	0.021
4	796	B. saida	16.0	17.0	0.022
4	797	B. saida	14.5	15.5	0.020

Table 11. Continued.

PLANKTON SAMPLE NUMBER	FISH SAMPLE NUMBER	SPECIES	STANDARD LENGTH (mm)	TOTAL LENGTH (mm)	WET WEIGHT (g)
4	798	B. saida	10.5	11.5	0.009
4	799	B. saida	14.0	15.0	0.018
4	800	B. saida	15.0	16.0	0.028
4	801	B. saida	6.5	7.5	0.009
4	802	B. saida	10.0	11.0	0.007
4	803	B. saida	15.5	16.5	0.021
4	804	B. saida	13.0	14.0	0.014
4	805	B. saida	12.5	13.5	0.013
4	806	B. saida	17.0	18.0	0.018
4	807	B. saida	17.0	18.0	0.012
4	808	B. saida	14.0	15.0	0.019
4	809	B. saida	11.5	12.5	0.011
4	810	B. saida	13.0	14.0	0.016
4	812	B. saida	13.5	14.5	0.017
4	813	B. saida	11.0	12.0	0.010
4	814	B. saida	12.0	13.0	0.010
4	815	B. saida	14.0	15.0	0.013
4	816	B. saida	13.5	14.5	0.015
4	818	B. saida	12.0	13.0	0.013
4	819	B. saida	14.5	15.5	0.021
4	820	B. saida	14.5	15.5	0.021
4	821	B. saida	12.0	13.0	0.014
4	822	B. saida	10.0	11.0	0.010
4	823	B. saida	13.0	14.0	0.019
4	824	B. saida	12.5	13.5	0.012
4	825	B. saida	13.0	14.0	0.016
4	826	B. saida	16.0	17.0	0.030
4	827	B. saida	13.5	14.5	0.018
4	828	B. saida	11.0	12.0	0.009
4	829	B. saida	11.0	12.0	0.009
4	830	B. saida	12.0	13.0	0.012
4	831	B. saida	14.0	15.0	0.017
4	832	B. saida	13.0	14.0	0.016
4	1002	B. saida	14.0	15.0	0.015
4	1003	B. saida	7.5	8.5	0.011
4	1004	B. saida	16.0	17.0	0.025
4	1005	B. saida	15.0	16.0	0.017
4	1006	B. saida	14.0	15.0	0.016
4	1007	B. saida	13.5	14.5	0.017
4	1008	B. saida	14.0	15.0	0.017
4	1009	B. saida	12.5	13.5	0.014
4	1010	B. saida	11.5	12.0	0.010
4	1011	B. saida	13.0	14.0	0.015
4	1013	B. saida	17.0	18.0	0.028
4	1014	B. saida	14.0	15.0	0.018
4	1015	B. saida	13.0	14.0	0.013
4	1016	B. saida	14.5	15.5	0.022
4	1017	B. saida	14.0	15.0	0.020
4	1018	B. saida	13.5	14.5	0.014
4	1019	B. saida	12.5	13.5	0.014
4	1020	B. saida	12.0	13.0	0.013
4	1021	B. saida	13.5	14.5	0.016
4	1022	B. saida	14.0	15.0	0.019
4	1023	B. saida	12.0	13.0	0.013
4	1024	B. saida	11.0	11.5	0.007
4	1025	B. saida	15.0	16.0	0.022
4	1026	B. saida	13.0	14.0	0.015
4	1027	B. saida	14.5	15.5	0.024
4	1028	B. saida	15.0	16.0	0.022
4	1029	B. saida	11.5	12.5	0.008
4	1030	B. saida	12.0	13.0	0.014
4	1031	B. saida	15.0	16.0	0.020
4	1032	B. saida	14.5	15.5	0.021
4	1033	B. saida	14.0	15.0	0.015
4	1034	B. saida	13.0	14.0	0.017
4	1035	B. saida	15.0	16.0	0.022
4	1036	B. saida	12.5	13.5	0.014
4	1037	B. saida	11.0	12.0	0.010
4	1038	B. saida	10.5	11.0	0.006
4	1039	B. saida	14.0	15.0	0.016
4	1040	B. saida	13.0	14.0	0.013
4	1041	B. saida	12.0	13.0	0.013
4	1042	B. saida	14.0	15.0	0.015
4	1043	B. saida	12.0	13.0	0.011
4	1044	B. saida	13.5	14.5	0.015
4	1045	B. saida	15.0	16.0	0.020
4	1046	B. saida	14.0	15.0	0.018
4	1047	B. saida	12.5	13.5	0.011
4	1048	B. saida	12.5	13.5	0.010
4	1049	B. saida	10.5	11.5	0.006
4	1050	B. saida	13.0	14.0	0.013
4	1051	B. saida	12.5	13.5	0.012
4	1052	B. saida	12.0	13.0	0.008
4	1053	B. saida	14.5	15.5	0.017
4	1054	B. saida	14.0	15.0	0.020
4	1055	B. saida	11.0	12.0	0.008
4	1056	B. saida	13.5	14.5	0.012
4	1057	B. saida	15.0	16.0	0.019

Table 11. Continued.

PLANKTON SAMPLE NUMBER	FISH SAMPLE NUMBER	SPECIES	STANDARD LENGTH (mm)	TOTAL LENGTH (mm)	WET WEIGHT (g)
4	1058	B. saida	14.5	15.5	0.017
4	1059	B. saida	13.0	14.0	0.017
4	1060	B. saida	12.0	13.0	0.009
4	1061	B. saida	14.0	15.0	0.020
4	1062	B. saida	11.0	12.0	0.008
4	1063	B. saida	13.5	14.5	0.014
4	1064	B. saida	12.5	13.5	0.013
4	1065	B. saida	11.0	12.0	0.007
4	1066	B. saida	14.5	15.5	0.017
4	1067	B. saida	12.0	13.0	0.013
4	1068	B. saida	12.5	13.5	0.012
4	1069	B. saida	12.0	13.0	0.010
4	1070	B. saida	13.0	14.0	0.013
4	1071	B. saida	13.0	14.0	0.011
4	1072	B. saida	16.0	17.0	0.021
4	1073	B. saida	15.0	16.0	0.028
4	1074	B. saida	13.0	14.0	0.012
4	1075	B. saida	12.5	13.5	0.015
4	1076	B. saida	11.5	12.5	0.012
4	1077	B. saida	15.0	16.0	0.021
4	1079	B. saida	12.5	13.5	0.011
4	1080	B. saida	10.0	11.0	0.009
4	1081	B. saida	14.0	15.0	0.016
4	1082	B. saida	15.0	16.0	0.023
4	1083	B. saida	10.0	11.0	0.008
4	1084	B. saida	11.0	12.0	0.013
4	1085	B. saida	13.0	14.0	0.015
4	1094	B. saida	15.0	16.0	0.023
4	1095	B. saida	13.0	14.0	0.013
4	1096	B. saida	14.0	15.0	0.022
4	1097	B. saida	16.5	17.5	0.026
4	1098	B. saida	16.5	17.5	0.026
4	1099	B. saida	13.5	14.5	0.015
4	1100	B. saida	15.0	16.0	0.023
4	1101	B. saida	12.0	13.0	0.011
4	1102	B. saida	15.0	16.0	0.018
4	1103	B. saida	12.0	13.0	0.014
4	1104	B. saida	11.5	12.5	0.009
4	1105	B. saida	15.0	16.0	0.019
4	1106	B. saida	13.0	14.0	0.016
4	1107	B. saida	13.0	14.0	0.015
4	1108	B. saida	14.5	15.5	0.021
4	1109	B. saida	13.0	14.0	0.019
4	1110	B. saida	11.5	12.5	0.009
4	1111	B. saida	15.0	16.0	0.019
4	1112	B. saida	15.0	16.0	0.021
4	1113	B. saida	13.5	14.5	0.013
4	1114	B. saida	11.0	12.0	0.008
4	1115	B. saida	13.0	14.0	0.014
4	1116	B. saida	14.5	15.5	0.020
4	1117	B. saida	13.0	14.0	0.013
4	1118	B. saida	12.0	13.0	0.013
4	1119	B. saida	13.5	14.5	0.015
4	1121	B. saida	12.0	13.0	0.015
4	1122	B. saida	14.5	15.5	0.014
4	1123	B. saida	12.0	13.0	0.010
4	1124	B. saida	13.5	14.5	0.014
4	1125	B. saida	14.0	15.0	0.020
4	1126	B. saida	15.0	16.0	0.025
4	1127	B. saida	15.5	17.0	0.024
4	1128	B. saida	15.5	16.5	0.019
4	1129	B. saida	12.0	13.0	0.011
4	1130	B. saida	13.5	14.5	0.018
4	1131	B. saida	14.0	15.0	0.020
4	1132	B. saida	16.0	17.0	0.022
4	1133	B. saida	11.0	12.0	0.008
4	1134	B. saida	14.0	15.0	0.014
4	1135	B. saida	12.5	13.5	0.010
4	1136	B. saida	13.0	14.0	0.014
4	1137	B. saida	12.0	13.0	0.013
4	1138	B. saida	12.0	13.0	0.010
4	1139	B. saida	12.0	13.0	0.011
4	1140	B. saida	11.0	12.0	0.007
4	1141	B. saida	13.5	14.5	0.014
4	1142	B. saida	11.5	12.5	0.012
4	1143	B. saida	12.0	13.0	0.013
4	1144	B. saida	12.5	13.5	0.012
4	1145	B. saida	14.0	15.0	0.017
4	1146	B. saida	13.0	14.0	0.013
4	1147	B. saida	13.5	14.5	0.020
4	1148	B. saida	13.5	14.5	0.014
4	1149	B. saida	10.5	11.5	0.010
4	1150	B. saida	12.0	13.0	0.014
4	1151	B. saida	15.0	16.0	0.023
4	1152	B. saida	12.0	13.0	0.009
4	1153	B. saida	10.0	11.0	0.008
4	1154	B. saida	12.0	13.0	0.014
4	1155	B. saida	14.0	15.0	0.017

Table 11. Continued.

PLANKTON SAMPLE NUMBER	FISH SAMPLE NUMBER	SPECIES	STANDARD LENGTH (mm)	TOTAL LENGTH (mm)	WET WEIGHT (g)	PLANKTON SAMPLE NUMBER	FISH SAMPLE NUMBER	SPECIES	STANDARD LENGTH (mm)	TOTAL LENGTH (mm)	WET WEIGHT (g)
4	1156	B. saida	12.5	13.5	0.014	4	1202	B. saida	12.0	13.0	0.010
4	1157	B. saida	13.5	14.5	0.012	4	1203	B. saida	14.5	15.5	0.019
4	1158	B. saida	9.0	9.5	0.003	4	1204	B. saida	12.0	13.0	0.009
4	1159	B. saida	15.5	16.5	0.021	4	1205	B. saida	11.0	12.0	0.008
4	1160	B. saida	13.5	14.5	0.018	4	1207	B. saida	13.0	14.0	0.015
4	1161	B. saida	14.0	15.0	0.018	4	1208	B. saida	10.0	10.5	0.005
4	1162	B. saida	12.0	13.0	0.010	4	1210	B. saida	13.0	14.0	0.012
4	1163	B. saida	12.0	13.0	0.010	4	1211	B. saida	10.5	11.5	0.007
4	1164	B. saida	13.0	14.0	0.016	4	1212	B. saida	12.5	13.5	0.011
4	1165	B. saida	13.5	14.5	0.018	4	1213	B. saida	10.5	11.5	0.008
4	1166	B. saida	12.0	13.0	0.014	4	1214	B. saida	12.0	13.0	0.014
4	1167	B. saida	12.5	13.5	0.013	4	1215	B. saida	10.0	11.0	0.006
4	1169	B. saida	9.0	9.5	0.004	4	1216	B. saida	12.0	13.0	0.011
4	1170	B. saida	12.0	13.0	0.012	4	1217	B. saida	11.0	12.0	0.008
4	1171	B. saida	10.0	11.0	0.007	4	1218	B. saida	11.0	12.0	0.007
4	1172	B. saida	16.5	17.5	0.023	4	1219	B. saida	16.0	17.0	0.023
4	1173	B. saida	16.0	17.0	0.028	4	1220	B. saida	13.0	14.0	0.016
4	1174	B. saida	13.5	14.5	0.013	4	1221	B. saida	13.0	14.0	0.014
4	1175	B. saida	10.0	10.5	0.008	4	1222	B. saida	16.0	17.0	0.019
4	1176	B. saida	14.0	15.0	0.016	4	1223	B. saida	13.0	14.0	0.015
4	1177	B. saida	10.0	11.0	0.009	4	1224	B. saida	12.0	13.0	0.011
4	1178	B. saida	18.0	19.0	0.034	4	1225	B. saida	13.0	14.0	0.017
4	1179	B. saida	10.0	11.0	0.008	4	1226	B. saida	13.0	14.0	0.017
4	1180	B. saida	11.0	12.0	0.008	4	1227	B. saida	14.0	15.0	0.021
4	1181	B. saida	12.5	13.5	0.011	4	1228	B. saida	15.0	16.0	0.023
4	1182	B. saida	11.5	12.5	0.009	4	1229	B. saida	15.0	16.0	0.017
4	1183	B. saida	14.0	15.0	0.021	4	1230	B. saida	14.5	15.5	0.020
4	1184	B. saida	10.5	11.5	0.007	4	1231	B. saida	14.0	15.0	0.020
4	1186	B. saida	11.0	12.0	0.006	4	1232	B. saida	12.0	13.0	0.012
4	1187	B. saida	12.0	13.0	0.014	4	1233	B. saida	14.0	15.0	0.020
4	1188	B. saida	13.0	14.0	0.016	4	1234	B. saida	17.5	18.5	0.038
4	1189	B. saida	15.0	16.0	0.023	4	1235	B. saida	13.0	14.0	0.019
4	1190	B. saida	12.5	13.5	0.014	4	1236	B. saida	11.0	12.0	0.010
4	1191	B. saida	11.5	12.5	0.012	4	1237	B. saida	14.5	15.5	0.026
4	1192	B. saida	14.5	15.5	0.024	4	1238	B. saida	12.0	13.0	0.012
4	1193	B. saida	12.5	13.5	0.014	4	1239	B. saida	11.0	11.5	0.008
4	1194	B. saida	13.5	14.5	0.016	4	1240	B. saida	15.0	16.0	0.023
4	1195	B. saida	11.5	12.5	0.007	4	1241	B. saida	16.0	17.0	0.035
4	1196	B. saida	15.5	16.5	0.019	4	1242	B. saida	13.0	14.0	0.018
4	1197	B. saida	12.0	13.0	0.009	4	1243	B. saida	13.5	14.5	0.015
4	1198	B. saida	15.5	16.5	0.022	4	1244	B. saida	12.0	13.0	0.014
4	1199	B. saida	11.5	12.5	0.007	4	1245	B. saida	12.5	13.5	0.013
4	1200	B. saida	13.5	14.5	0.014	4	1246	B. saida	13.0	14.0	0.014
4	1201	B. saida	10.5	11.5	0.008	4	1247	B. saida	12.0	13.0	0.010

Table 11. Continued.

PLANKTON SAMPLE NUMBER	FISH SAMPLE NUMBER	SPECIES	STANDARD LENGTH (mm)	TOTAL LENGTH (mm)	WET WEIGHT (g)
4	1248	B. saida	11.5	12.5	0.011
4	1249	B. saida	11.5	12.0	0.010
4	1250	B. saida	14.0	15.0	0.021
4	1251	B. saida	11.5	12.5	0.013
4	1252	B. saida	13.5	14.5	0.014
4	1253	B. saida	10.5	11.0	0.006
4	1254	B. saida	12.0	13.0	0.014
4	1255	B. saida	10.0	10.5	0.007
4	1257	B. saida	9.5	10.0	0.003
4	1258	B. saida	10.0	10.5	0.005
4	1284	B. saida	14.0	15.0	0.019
4	1285	B. saida	12.5	13.5	0.012
4	1286	B. saida	15.5	17.0	0.031
4	1287	B. saida	12.0	13.0	0.013
4	1288	B. saida	13.0	14.0	0.015
4	1289	B. saida	15.5	16.5	0.021
4	1290	B. saida	14.5	15.5	0.019
4	1291	B. saida	17.5	18.5	0.027
4	1292	B. saida	15.0	16.0	0.023
4	1294	B. saida	15.5	16.5	0.023
4	1295	B. saida	18.0	19.0	0.042
4	1296	B. saida	15.0	16.0	0.023
4	1297	B. saida	12.0	13.0	0.014
4	1298	B. saida	16.0	17.0	0.030
4	1299	B. saida	11.0	12.0	0.011
4	1300	B. saida	14.0	15.0	0.023
4	1301	B. saida	17.5	19.0	0.037
4	1302	B. saida	14.0	15.0	0.020
4	1303	B. saida	11.0	12.0	0.011
4	1304	B. saida	15.0	16.0	0.026
4	1305	B. saida	15.0	16.0	0.021
4	1306	B. saida	14.0	15.0	0.020
4	1307	B. saida	15.0	16.0	0.030
4	1308	B. saida	14.5	15.5	0.025
4	1309	B. saida	14.0	15.0	0.021
4	1310	B. saida	15.5	16.5	0.027
4	1311	B. saida	12.5	13.5	0.011
4	1312	B. saida	14.5	15.5	0.025
4	1313	B. saida	14.5	15.5	0.022
4	1314	B. saida	14.0	15.0	0.022
4	1315	B. saida	15.0	16.0	0.021
4	1316	B. saida	14.0	15.0	0.022
4	1317	B. saida	12.5	13.5	0.016
4	20	G. tricuspis	15.0	17.5	0.027
4	21	G. tricuspis	15.0	17.5	0.026
4	24	G. tricuspis	15.0	17.0	0.033
4	1325	G. tricuspis	11.5	13.0	0.011
4	1326	G. tricuspis	13.0	15.0	0.015
4	1327	G. tricuspis	15.0	17.5	0.030
4	1339	A. medius	19.5	21.0	0.013
5	244	B. saida	12.0	13.0	0.009
5	245	B. saida	9.5	10.0	0.002
5	246	B. saida	10.0	11.0	0.006
5	247	B. saida	12.5	13.5	0.014
5	248	B. saida	9.0	10.0	0.003
5	249	B. saida	13.0	14.0	0.014
5	250	B. saida	10.5	11.0	0.003
5	251	B. saida	9.5	10.5	0.003
5	252	B. saida	9.5	10.5	0.003
5	253	B. saida	10.0	11.0	0.005
5	254	B. saida	10.0	11.0	0.005
5	256	B. saida	12.0	13.0	0.010
5	257	B. saida	8.0	8.5	0.000
5	258	B. saida	7.5	8.0	0.000
5	259	B. saida	7.5	8.0	0.000
5	1328	G. tricuspis	11.5	13.0	0.011
7	833	B. saida	12.0	13.0	0.009
7	834	B. saida	9.5	9.5	0.003
7	835	B. saida	11.0	11.0	0.006
7	836	B. saida	10.0	10.0	0.005
7	837	B. saida	10.0	10.0	0.006
7	838	B. saida	9.0	9.0	0.003
7	839	B. saida	11.5	12.0	0.007
7	840	B. saida	10.5	11.0	0.004
7	841	B. saida	10.5	11.0	0.007
7	842	B. saida	9.0	9.0	0.002
7	843	B. saida	11.0	12.0	0.011
7	844	B. saida	11.0	11.0	0.006
7	845	B. saida	10.0	10.0	0.005
7	846	B. saida	11.0	12.0	0.007
7	847	B. saida	11.0	11.0	0.006
7	848	B. saida	7.0	7.0	0.002
7	849	B. saida	8.5	8.5	0.004
7	850	B. saida	9.0	9.5	0.006
7	851	B. saida	9.0	9.0	0.005
7	852	B. saida	9.0	9.5	0.009
7	853	B. saida	14.0	15.0	0.016
7	854	B. saida	9.5	10.0	0.005

Table 11. Continued.

PLANKTON SAMPLE NUMBER	FISH SAMPLE NUMBER	SPECIES	STANDARD LENGTH (mm)	TOTAL LENGTH (mm)	WET WEIGHT (g)	PLANKTON SAMPLE NUMBER	FISH SAMPLE NUMBER	SPECIES	STANDARD LENGTH (mm)	TOTAL LENGTH (mm)	WET WEIGHT (g)
7	855	B. saida	9.5	9.5	0.002	7	901	B. saida	8.0	8.0	0.003
7	856	B. saida	10.5	11.0	0.008	7	902	B. saida	9.5	10.0	0.006
7	857	B. saida	10.0	10.0	0.006	7	903	B. saida	10.5	11.0	0.003
7	858	B. saida	10.5	11.0	0.006	7	904	B. saida	9.5	10.0	0.007
7	859	B. saida	10.0	10.5	0.004	7	905	B. saida	8.5	8.5	0.002
7	861	B. saida	11.0	11.5	0.011	7	906	B. saida	9.0	9.0	0.004
7	862	B. saida	10.5	11.0	0.007	7	907	B. saida	9.0	9.0	0.003
7	863	B. saida	10.0	10.5	0.006	7	908	B. saida	12.0	13.0	0.010
7	864	B. saida	10.0	10.5	0.006	7	909	B. saida	10.0	10.0	0.003
7	865	B. saida	9.5	9.5	0.005	7	910	B. saida	12.0	12.5	0.009
7	866	B. saida	10.5	11.0	0.007	7	911	B. saida	9.0	9.0	0.003
7	867	B. saida	10.0	10.0	0.003	7	912	B. saida	9.0	9.5	0.004
7	868	B. saida	9.0	9.0	0.002	7	913	B. saida	9.5	10.0	0.005
7	869	B. saida	9.5	10.0	0.007	7	914	B. saida	9.5	10.0	0.005
7	870	B. saida	8.5	8.5	0.002	7	915	B. saida	9.0	9.0	0.004
7	871	B. saida	9.0	9.0	0.004	7	916	B. saida	9.0	9.0	0.004
7	872	B. saida	11.0	11.0	0.005	7	917	B. saida	9.0	9.5	0.003
7	873	B. saida	9.0	9.0	0.007	7	918	B. saida	10.0	10.5	0.003
7	874	B. saida	9.5	10.0	0.004	7	919	B. saida	9.5	10.0	0.004
7	875	B. saida	9.5	10.0	0.004	7	920	B. saida	9.5	9.5	0.005
7	876	B. saida	10.5	11.0	0.005	7	921	B. saida	9.0	9.5	0.004
7	877	B. saida	9.0	9.0	0.003	7	922	B. saida	8.0	8.0	0.002
7	878	B. saida	9.0	9.0	0.002	7	923	B. saida	9.5	10.0	0.004
7	879	B. saida	10.5	11.0	0.009	7	924	B. saida	8.5	8.5	0.001
7	880	B. saida	9.0	9.0	0.003	7	926	B. saida	11.0	11.5	0.008
7	881	B. saida	10.0	10.0	0.004	7	927	B. saida	10.0	10.5	0.007
7	882	B. saida	11.0	11.5	0.008	7	928	B. saida	9.0	9.5	0.005
7	883	B. saida	10.0	10.5	0.007	7	930	B. saida	11.5	12.5	0.011
7	884	B. saida	10.0	10.5	0.004	7	931	B. saida	9.0	9.5	0.004
7	885	B. saida	9.0	9.0	0.003	7	933	B. saida	11.0	11.5	0.005
7	886	B. saida	10.0	10.5	0.005	7	934	B. saida	7.5	7.5	0.000
7	887	B. saida	8.5	9.0	0.004	7	935	B. saida	11.0	12.0	0.010
7	888	B. saida	9.5	10.0	0.006	7	936	B. saida	9.5	10.0	0.005
7	889	B. saida	10.5	11.0	0.008	7	937	B. saida	11.0	12.0	0.009
7	890	B. saida	9.0	9.0	0.004	7	938	B. saida	10.0	10.5	0.006
7	891	B. saida	9.5	10.0	0.004	7	939	B. saida	8.0	8.0	0.002
7	893	B. saida	9.5	10.0	0.003	7	940	B. saida	10.5	11.0	0.009
7	894	B. saida	13.0	14.0	0.013	7	941	B. saida	10.5	11.0	0.008
7	895	B. saida	12.0	13.0	0.010	7	942	B. saida	10.0	10.0	0.002
7	896	B. saida	10.0	10.5	0.006	7	943	B. saida	9.5	10.0	0.005
7	897	B. saida	8.0	8.0	0.002	7	944	B. saida	10.0	10.5	0.006
7	898	B. saida	8.0	8.0	0.002	7	945	B. saida	11.0	12.0	0.010
7	899	B. saida	9.5	10.0	0.008	7	946	B. saida	9.5	10.0	0.004
7	900	B. saida	8.0	8.0	0.002	7	947	B. saida	12.0	13.0	0.011

Table 11. Continued.

PLANKTON SAMPLE NUMBER	FISH SAMPLE NUMBER	SPECIES	STANDARD LENGTH (mm)	TOTAL LENGTH (mm)	WET WEIGHT (g)
7	948	B. saida	9.0	9.5	0.003
7	949	B. saida	10.0	10.5	0.004
7	950	B. saida	9.5	10.0	0.005
7	951	B. saida	9.0	9.0	0.004
7	952	B. saida	10.5	11.0	0.007
7	953	B. saida	9.0	9.5	0.005
7	954	B. saida	8.0	8.0	0.001
7	955	B. saida	9.0	9.5	0.004
7	956	B. saida	9.0	9.0	0.005
7	957	B. saida	8.0	8.5	0.002
7	958	B. saida	12.0	13.0	0.011
7	959	B. saida	9.0	9.0	0.003
7	960	B. saida	9.0	9.5	0.003
7	961	B. saida	10.0	10.0	0.002
7	962	B. saida	10.5	11.0	0.005
7	963	B. saida	9.5	10.0	0.007
7	964	B. saida	9.5	10.0	0.006
7	965	B. saida	10.0	10.5	0.004
7	966	B. saida	10.5	11.0	0.005
7	967	B. saida	9.0	9.0	0.004
7	968	B. saida	9.5	10.0	0.005
7	969	B. saida	10.0	10.0	0.003
7	970	B. saida	10.0	10.0	0.004
7	971	B. saida	9.0	9.0	0.002
7	972	B. saida	10.0	10.5	0.005
7	973	B. saida	10.0	10.5	0.005
7	974	B. saida	9.5	10.0	0.004
7	975	B. saida	9.0	9.0	0.002
7	976	B. saida	11.5	12.5	0.010
7	977	B. saida	8.0	8.0	0.002
7	978	B. saida	8.5	8.5	0.001
7	979	B. saida	12.0	13.0	0.011
7	980	B. saida	8.0	8.0	0.002
7	981	B. saida	9.0	9.0	0.003
7	982	B. saida	10.0	11.0	0.006
7	983	B. saida	12.0	13.0	0.009
7	984	B. saida	11.0	12.0	0.008
7	985	B. saida	10.5	11.0	0.007
7	987	B. saida	11.5	12.0	0.008
7	988	B. saida	10.0	10.5	0.006
7	989	B. saida	10.0	10.5	0.005
7	991	B. saida	9.5	9.5	0.006
7	992	B. saida	9.5	9.5	0.003
7	993	B. saida	9.5	10.0	0.004
7	994	B. saida	9.5	10.0	0.003
7	995	B. saida	9.5	10.0	0.004
7	996	B. saida	8.0	8.0	0.000
7	997	B. saida	9.0	9.0	0.002
8	47	B. saida	13.5	14.0	0.011
8	48	B. saida	14.0	15.0	0.011
8	49	B. saida	12.5	13.5	0.008
8	50	B. saida	15.0	16.0	0.016
8	52	B. saida	14.0	15.0	0.017
8	53	B. saida	11.0	12.0	0.011
8	54	B. saida	15.0	16.0	0.016
8	55	B. saida	14.0	15.0	0.016
8	56	B. saida	11.5	12.5	0.010
8	57	B. saida	10.5	10.5	0.006
8	58	B. saida	14.0	15.0	0.013
8	59	B. saida	12.5	13.5	0.009
8	60	B. saida	12.0	13.0	0.009
8	61	B. saida	14.0	15.0	0.012
8	62	B. saida	14.0	15.0	0.015
8	63	B. saida	12.0	12.5	0.007
8	64	B. saida	12.5	13.5	0.010
8	65	B. saida	14.0	15.0	0.012
8	66	B. saida	12.0	13.0	0.007
8	67	B. saida	11.5	12.0	0.008
8	68	B. saida	12.0	13.0	0.010
8	69	B. saida	11.5	12.5	0.008
8	70	B. saida	13.0	14.0	0.009
8	71	B. saida	12.0	13.0	0.008
8	72	B. saida	11.5	12.5	0.009
8	73	B. saida	14.0	15.0	0.016
8	74	B. saida	15.5	16.0	0.018
8	75	B. saida	13.0	14.0	0.013
8	76	B. saida	13.0	14.0	0.012
8	77	B. saida	15.0	16.0	0.021
8	78	B. saida	12.0	13.0	0.009
8	79	B. saida	14.0	15.0	0.017
8	80	B. saida	14.0	15.0	0.016
8	81	B. saida	12.0	13.0	0.012
8	82	B. saida	12.0	13.0	0.007
8	83	B. saida	13.5	14.0	0.008
8	84	B. saida	12.0	13.0	0.009
8	85	B. saida	13.0	14.0	0.010
8	86	B. saida	13.0	14.0	0.011
8	87	B. saida	13.0	14.0	0.013

Table 11. Continued.

PLANKTON SAMPLE NUMBER	FISH SAMPLE NUMBER	SPECIES	STANDARD LENGTH (mm)	TOTAL LENGTH (mm)	WET WEIGHT (g)	PLANKTON SAMPLE NUMBER	FISH SAMPLE NUMBER	SPECIES	STANDARD LENGTH (mm)	TOTAL LENGTH (mm)	WET WEIGHT (g)
8	88	B. saida	13.5	14.5	0.010	8	140	B. saida	12.0	13.0	0.008
8	89	B. saida	12.0	13.0	0.010	8	141	B. saida	11.5	12.5	0.008
8	90	B. saida	14.0	15.0	0.015	8	143	B. saida	10.0	10.5	0.008
8	91	B. saida	13.0	14.0	0.012	8	144	B. saida	10.5	11.0	0.007
8	92	B. saida	12.5	13.5	0.009	8	145	B. saida	9.5	10.0	0.004
8	93	B. saida	10.0	10.5	0.006	8	146	B. saida	11.5	12.5	0.008
8	94	B. saida	15.5	16.5	0.018	8	147	B. saida	11.0	12.0	0.007
8	95	B. saida	13.5	14.5	0.011	8	148	B. saida	13.5	14.5	0.014
8	97	B. saida	12.5	13.5	0.010	8	149	B. saida	12.5	14.0	0.013
8	99	B. saida	11.5	12.5	0.009	8	150	B. saida	11.0	12.0	0.006
8	100	B. saida	12.0	13.0	0.010	8	151	B. saida	10.5	11.5	0.009
8	101	B. saida	11.0	12.0	0.008	8	152	B. saida	12.0	13.0	0.008
8	102	B. saida	13.0	14.0	0.011	8	153	B. saida	12.5	14.0	0.013
8	103	B. saida	12.5	13.5	0.010	8	154	B. saida	13.0	14.0	0.015
8	104	B. saida	13.0	14.0	0.014	8	155	B. saida	10.5	11.5	0.009
8	105	B. saida	13.0	14.0	0.013	8	156	B. saida	14.0	15.0	0.017
8	106	B. saida	11.5	12.5	0.011	8	157	B. saida	11.0	12.0	0.007
8	107	B. saida	12.5	13.5	0.008	8	158	B. saida	14.0	15.0	0.013
8	109	B. saida	9.0	10.0	0.004	8	159	B. saida	13.5	14.5	0.013
8	111	B. saida	12.0	13.0	0.011	8	160	B. saida	10.0	11.0	0.005
8	112	B. saida	13.0	14.0	0.012	8	161	B. saida	12.5	13.5	0.011
8	113	B. saida	12.5	13.5	0.010	8	162	B. saida	14.0	15.0	0.017
8	114	B. saida	16.0	17.5	0.024	8	163	B. saida	9.0	10.0	0.004
8	116	B. saida	12.0	13.0	0.010	8	164	B. saida	12.0	13.0	0.011
8	117	B. saida	14.0	15.0	0.013	8	165	B. saida	12.0	13.0	0.008
8	120	B. saida	12.0	13.0	0.008	8	166	B. saida	13.0	14.0	0.012
8	121	B. saida	13.0	14.0	0.015	8	167	B. saida	10.5	11.5	0.007
8	122	B. saida	13.5	14.5	0.013	8	169	B. saida	11.0	12.0	0.005
8	123	B. saida	12.0	13.0	0.009	8	170	B. saida	10.0	10.5	0.004
8	124	B. saida	15.5	17.0	0.020	8	171	B. saida	12.0	13.0	0.007
8	126	B. saida	12.0	13.0	0.009	8	172	B. saida	11.0	12.0	0.008
8	127	B. saida	12.0	13.0	0.011	8	173	B. saida	11.0	12.0	0.007
8	128	B. saida	14.0	15.0	0.013	8	174	B. saida	13.0	14.0	0.010
8	129	B. saida	13.5	15.0	0.015	8	175	B. saida	11.5	12.5	0.010
8	130	B. saida	11.0	12.0	0.006	8	176	B. saida	11.5	12.5	0.007
8	131	B. saida	11.0	12.0	0.007	8	178	B. saida	10.5	11.5	0.007
8	132	B. saida	13.0	14.0	0.013	8	179	B. saida	11.0	12.0	0.006
8	133	B. saida	13.0	14.0	0.012	8	182	B. saida	11.0	12.0	0.008
8	134	B. saida	12.0	13.0	0.007	8	183	B. saida	15.0	16.0	0.017
8	135	B. saida	13.0	14.0	0.011	8	184	B. saida	12.0	13.0	0.009
8	136	B. saida	14.0	15.0	0.013	8	186	B. saida	11.0	12.0	0.008
8	137	B. saida	14.0	15.0	0.012	8	188	B. saida	13.5	14.5	0.013
8	138	B. saida	12.0	13.0	0.009	8	189	B. saida	8.0	9.0	0.003
8	139	B. saida	10.5	11.0	0.004	8	190	B. saida	12.0	13.0	0.009

Table 11. Continued.

PLANKTON SAMPLE NUMBER	FISH SAMPLE NUMBER	SPECIES	STANDARD LENGTH (mm)	TOTAL LENGTH (mm)	WET WEIGHT (g)
8	191	B. saida	12.0	13.0	0.008
8	192	B. saida	10.5	11.5	0.005
8	193	B. saida	12.0	13.0	0.008
8	194	B. saida	10.5	11.5	0.005
8	197	B. saida	6.0	7.0	0.002
8	198	B. saida	8.0	8.5	0.003
8	1329	G. tricuspis	11.5	12.5	0.006
8	1330	G. tricuspis	15.5	17.0	0.024
8	1331	G. tricuspis	13.0	14.5	0.015
8	1337	A. olriki	8.5	9.0	0.001
10	605	B. saida	30.0	32.5	0.188
11	1000	B. saida	17.0	18.5	0.021
11	1001	B. saida	15.5	16.5	0.017
12	296	B. saida	19.0	20.0	0.035
12	297	B. saida	16.5	17.5	0.023
12	298	B. saida	19.0	21.5	0.030
12	299	B. saida	17.0	18.0	0.030
12	301	B. saida	16.5	17.5	0.023
12	302	B. saida	17.0	18.0	0.025
12	303	B. saida	15.0	16.0	0.017
12	304	B. saida	16.5	17.5	0.020
12	305	B. saida	16.0	17.0	0.019
12	306	B. saida	16.0	17.0	0.017
12	307	B. saida	16.0	17.0	0.019
12	308	B. saida	17.0	18.5	0.020
12	310	B. saida	13.0	14.0	0.015
12	311	B. saida	16.5	17.5	0.023
12	312	B. saida	13.0	14.0	0.010
12	313	B. saida	18.0	19.0	0.032
12	314	B. saida	19.0	20.0	0.039
12	316	B. saida	15.0	16.0	0.015
12	318	B. saida	17.0	18.0	0.026
12	319	B. saida	17.0	18.0	0.028
12	321	B. saida	12.5	13.5	0.008
12	322	B. saida	17.5	19.0	0.026
12	323	B. saida	11.5	12.5	0.020
12	324	B. saida	14.0	15.0	0.014
12	325	B. saida	17.5	19.0	0.030
12	326	B. saida	17.0	18.0	0.028
12	328	B. saida	13.5	14.5	0.010
12	329	B. saida	16.0	17.0	0.019
12	330	B. saida	16.0	17.0	0.018
12	331	B. saida	16.0	17.0	0.023
12	332	B. saida	18.0	19.5	0.034
12	335	B. saida	17.0	18.0	0.022
12	337	B. saida	14.0	15.0	0.010
12	338	B. saida	17.0	18.5	0.024
12	339	B. saida	17.5	19.0	0.024
12	341	B. saida	15.0	16.0	0.014
12	342	B. saida	17.0	18.0	0.020
12	343	B. saida	13.0	14.0	0.013
12	344	B. saida	19.0	21.0	0.036
12	345	B. saida	17.5	19.0	0.024
12	346	B. saida	17.0	18.5	0.020
12	347	B. saida	16.5	17.5	0.018
12	348	B. saida	15.0	16.0	0.015
12	349	B. saida	14.5	15.5	0.014
12	350	B. saida	15.0	16.0	0.014
12	351	B. saida	15.0	16.0	0.014
12	352	B. saida	12.0	13.0	0.009
12	354	B. saida	17.5	18.5	0.022
12	355	B. saida	17.5	19.0	0.024
12	356	B. saida	15.5	16.5	0.017
12	357	B. saida	14.0	15.5	0.014
12	358	B. saida	18.0	19.5	0.027
12	359	B. saida	14.0	15.0	0.011
12	360	B. saida	16.5	17.5	0.020
12	361	B. saida	18.0	19.0	0.026
12	362	B. saida	15.0	16.0	0.017
12	363	B. saida	16.5	17.5	0.020
12	365	B. saida	18.0	19.0	0.028
12	366	B. saida	16.0	17.0	0.021
12	368	B. saida	13.0	14.0	0.008
12	369	B. saida	14.0	15.0	0.014
12	370	B. saida	18.0	19.5	0.026
12	371	B. saida	15.0	16.0	0.019
12	373	B. saida	16.0	17.0	0.019
12	374	B. saida	16.5	17.5	0.018
12	375	B. saida	14.0	15.0	0.012
12	376	B. saida	12.0	13.0	0.007
12	377	B. saida	15.0	16.0	0.013
12	378	B. saida	16.0	17.0	0.024
12	379	B. saida	16.0	17.0	0.020
12	380	B. saida	14.0	15.0	0.010
12	381	B. saida	17.0	18.0	0.028
12	382	B. saida	17.0	18.0	0.021
12	383	B. saida	15.0	16.0	0.015
12	384	B. saida	16.0	17.0	0.022

Table 11. Continued.

PLANKTON SAMPLE NUMBER	FISH SAMPLE NUMBER	SPECIES	STANDARD LENGTH (mm)	TOTAL LENGTH (mm)	WET WEIGHT (g)	PLANKTON SAMPLE NUMBER	FISH SAMPLE NUMBER	SPECIES	STANDARD LENGTH (mm)	TOTAL LENGTH (mm)	WET WEIGHT (g)
12	385	B. saida	13.0	14.0	0.011	12	616	B. saida	10.0	11.0	0.011
12	387	B. saida	17.0	18.0	0.021	12	617	B. saida	15.0	16.0	0.017
12	388	B. saida	18.0	19.5	0.035	12	618	B. saida	14.0	15.0	0.013
12	389	B. saida	17.0	18.5	0.023	12	620	B. saida	18.5	20.0	0.035
12	390	B. saida	15.0	16.0	0.014	12	621	B. saida	17.5	18.5	0.026
12	393	B. saida	15.5	16.5	0.016	12	622	B. saida	15.0	16.0	0.016
12	394	B. saida	16.0	17.0	0.016	12	623	B. saida	16.5	18.0	0.031
12	396	B. saida	18.0	19.0	0.026	12	624	B. saida	15.0	16.0	0.015
12	397	B. saida	19.0	20.5	0.027	12	625	B. saida	14.0	15.0	0.009
12	398	B. saida	15.0	16.0	0.016	12	628	B. saida	16.0	17.0	0.016
12	399	B. saida	19.0	20.5	0.033	12	629	B. saida	17.5	19.0	0.029
12	401	B. saida	16.5	17.5	0.020	12	630	B. saida	14.5	15.5	0.016
12	402	B. saida	15.0	16.0	0.010	12	632	B. saida	13.5	14.5	0.009
12	403	B. saida	16.5	17.5	0.019	12	633	B. saida	14.0	15.0	0.012
12	404	B. saida	17.0	18.0	0.018	12	634	B. saida	17.0	18.0	0.022
12	405	B. saida	14.5	15.5	0.017	12	635	B. saida	13.0	14.0	0.010
12	406	B. saida	14.0	15.0	0.009	12	636	B. saida	16.5	17.5	0.020
12	407	B. saida	16.5	17.5	0.025	12	637	B. saida	18.0	19.0	0.026
12	408	B. saida	17.5	19.0	0.029	12	638	B. saida	15.5	16.5	0.017
12	409	B. saida	17.0	18.5	0.022	12	639	B. saida	15.0	16.0	0.016
12	410	B. saida	18.0	19.5	0.026	12	640	B. saida	13.5	14.5	0.015
12	411	B. saida	14.0	15.0	0.012	12	641	B. saida	14.5	15.5	0.017
12	412	B. saida	13.0	14.0	0.010	12	642	B. saida	19.0	20.5	0.031
12	413	B. saida	15.0	16.0	0.015	12	643	B. saida	16.5	17.5	0.021
12	414	B. saida	13.0	14.0	0.009	12	644	B. saida	18.0	19.0	0.029
12	415	B. saida	17.0	18.0	0.022	12	645	B. saida	17.0	18.5	0.026
12	416	B. saida	14.5	15.5	0.015	12	646	B. saida	16.0	17.0	0.022
12	417	B. saida	17.0	18.5	0.021	12	647	B. saida	17.0	18.0	0.024
12	418	B. saida	18.5	20.0	0.031	12	648	B. saida	16.0	17.0	0.017
12	419	B. saida	12.0	13.0	0.008	12	649	B. saida	15.0	16.0	0.020
12	422	B. saida	15.0	16.0	0.016	12	651	B. saida	16.0	17.0	0.020
12	423	B. saida	16.0	17.0	0.025	12	652	B. saida	18.5	20.0	0.033
12	426	B. saida	15.0	16.0	0.015	12	653	B. saida	18.0	19.0	0.032
12	427	B. saida	15.0	16.0	0.014	12	654	B. saida	13.5	14.5	0.010
12	606	B. saida	14.0	15.0	0.016	12	655	B. saida	14.0	15.0	0.012
12	607	B. saida	15.0	16.0	0.015	12	656	B. saida	16.5	17.5	0.022
12	608	B. saida	15.0	16.0	0.015	12	657	B. saida	16.0	17.0	0.025
12	609	B. saida	18.0	20.0	0.038	12	658	B. saida	13.0	14.0	0.012
12	610	B. saida	13.0	14.0	0.015	12	659	B. saida	19.0	20.0	0.038
12	611	B. saida	17.0	18.0	0.017	12	660	B. saida	16.0	17.0	0.024
12	612	B. saida	18.0	19.0	0.026	12	661	B. saida	15.0	16.0	0.011
12	613	B. saida	18.0	20.0	0.037	12	662	B. saida	19.0	20.5	0.040
12	614	B. saida	16.5	17.5	0.026	12	663	B. saida	16.0	17.0	0.021
12	615	B. saida	9.5	10.5	0.017	12	664	B. saida	16.5	17.5	0.020

Table 11. Continued.

PLANKTON SAMPLE NUMBER	FISH SAMPLE NUMBER	SPECIES	STANDARD LENGTH (mm)	TOTAL LENGTH (mm)	WET WEIGHT (g)
12	665	B. saida	16.0	17.0	0.021
12	667	B. saida	14.5	15.5	0.015
12	668	B. saida	16.0	17.0	0.014
12	669	B. saida	15.0	16.0	0.012
12	670	B. saida	14.0	15.0	0.016
12	671	B. saida	18.0	19.5	0.031
12	672	B. saida	13.5	14.5	0.013
12	673	B. saida	15.0	16.0	0.015
12	674	B. saida	13.0	14.0	0.014
12	675	B. saida	16.5	18.0	0.024
12	676	B. saida	14.0	15.0	0.009
12	677	B. saida	16.0	17.0	0.021
12	678	B. saida	14.0	15.0	0.018
12	680	B. saida	16.0	17.0	0.021
12	681	B. saida	15.5	16.5	0.018
12	682	B. saida	15.5	16.5	0.016
12	683	B. saida	18.5	20.0	0.039
12	684	B. saida	18.5	20.0	0.035
12	685	B. saida	20.0	22.0	0.041
12	686	B. saida	14.0	15.0	0.015
12	687	B. saida	17.0	18.0	0.032
12	688	B. saida	16.0	17.0	0.020
12	689	B. saida	15.0	16.0	0.018
12	690	B. saida	15.5	16.5	0.016
12	691	B. saida	12.5	13.5	0.008
12	692	B. saida	17.0	18.0	0.027
12	693	B. saida	16.5	18.0	0.020
12	694	B. saida	14.5	15.5	0.014
12	695	B. saida	14.5	15.5	0.015
12	696	B. saida	14.0	15.0	0.014
12	697	B. saida	18.5	19.5	0.031
12	698	B. saida	13.5	14.5	0.012
12	699	B. saida	12.0	13.0	0.007
12	700	B. saida	15.0	16.0	0.014
12	701	B. saida	13.5	14.5	0.013
12	702	B. saida	17.0	18.5	0.028
12	703	B. saida	15.5	16.5	0.016
12	704	B. saida	16.0	17.0	0.018
12	705	B. saida	18.0	20.0	0.030
12	707	B. saida	17.5	18.5	0.020
12	708	B. saida	17.0	18.0	0.023
12	709	B. saida	14.0	15.0	0.009
12	710	B. saida	18.0	19.5	0.031
12	711	B. saida	19.0	20.5	0.030
12	713	B. saida	14.0	15.0	0.013
12	714	B. saida	15.0	16.0	0.016
12	715	B. saida	13.0	14.0	0.013
12	716	B. saida	18.5	20.0	0.034
12	717	B. saida	15.0	16.0	0.019
12	718	B. saida	16.0	17.5	0.023
12	719	B. saida	15.0	16.0	0.013
12	720	B. saida	15.5	16.5	0.016
12	721	B. saida	18.0	19.0	0.032
12	722	B. saida	18.0	19.0	0.027
12	723	B. saida	20.5	22.0	0.045
12	724	B. saida	18.0	19.5	0.032
12	725	B. saida	18.5	19.5	0.030
12	726	B. saida	18.5	20.0	0.034
12	727	B. saida	15.0	16.0	0.016
12	729	B. saida	17.0	18.0	0.021
12	730	B. saida	15.0	16.0	0.015
12	731	B. saida	14.0	15.0	0.018
12	732	B. saida	14.0	15.0	0.016
12	733	B. saida	16.0	17.0	0.024
12	734	B. saida	16.0	17.0	0.021
12	736	B. saida	16.5	17.5	0.019
12	737	B. saida	15.5	17.0	0.019
12	738	B. saida	14.5	15.5	0.015
12	739	B. saida	14.5	15.5	0.020
12	740	B. saida	17.5	19.0	0.027
12	741	B. saida	14.0	15.0	0.014
12	743	B. saida	16.0	17.0	0.018
12	744	B. saida	16.5	17.5	0.020
12	745	B. saida	17.0	18.0	0.021
12	746	B. saida	16.0	17.0	0.023
12	747	B. saida	15.5	16.5	0.016
12	748	B. saida	18.0	19.5	0.031
12	749	B. saida	15.5	16.5	0.017
12	750	B. saida	19.0	20.0	0.032
12	752	B. saida	14.0	15.0	0.016
12	753	B. saida	19.5	21.0	0.042
12	754	B. saida	17.0	18.0	0.022
12	755	B. saida	17.0	18.0	0.032
12	756	B. saida	13.5	14.5	0.007
12	757	B. saida	17.0	18.0	0.022
12	758	B. saida	14.0	15.0	0.015
12	759	B. saida	15.5	16.5	0.018
12	761	B. saida	18.5	20.0	0.029

Table 11. Continued.

PLANKTON SAMPLE NUMBER	FISH SAMPLE NUMBER	SPECIES	STANDARD LENGTH (mm)	TOTAL LENGTH (mm)	WET WEIGHT (g)	PLANKTON SAMPLE NUMBER	FISH SAMPLE NUMBER	SPECIES	STANDARD LENGTH (mm)	TOTAL LENGTH (mm)	WET WEIGHT (g)
12	762	B. saida	15.5	16.5	0.019	14	462	B. saida	15.0	16.0	0.017
12	763	B. saida	15.5	16.5	0.016	14	463	B. saida	16.0	17.0	0.025
12	764	B. saida	18.5	20.0	0.030	14	464	B. saida	14.0	15.0	0.017
12	765	B. saida	16.0	17.0	0.016	14	465	B. saida	17.0	18.0	0.029
12	766	B. saida	16.0	17.0	0.018	14	466	B. saida	14.5	15.5	0.013
12	767	B. saida	15.0	16.0	0.017	14	467	B. saida	17.5	19.0	0.030
12	768	B. saida	17.5	19.0	0.028	14	468	B. saida	15.5	16.5	0.024
12	769	B. saida	19.0	20.5	0.036	14	469	B. saida	17.0	18.0	0.034
12	770	B. saida	18.0	19.5	0.036	14	470	B. saida	16.5	17.5	0.021
12	772	B. saida	16.0	17.0	0.018	14	471	B. saida	12.0	13.0	0.010
12	773	B. saida	14.0	15.0	0.017	14	472	B. saida	16.0	17.0	0.017
12	774	B. saida	17.0	18.0	0.024	14	473	B. saida	18.0	19.5	0.031
12	775	B. saida	16.0	17.0	0.020	14	474	B. saida	14.5	15.5	0.020
12	776	B. saida	13.5	14.5	0.011	14	475	B. saida	15.5	16.5	0.023
12	778	B. saida	16.0	17.0	0.018	14	477	B. saida	16.0	17.0	0.025
12	779	B. saida	17.0	18.0	0.020	14	478	B. saida	16.0	17.0	0.024
12	780	B. saida	14.5	15.5	0.013	14	479	B. saida	15.0	16.0	0.019
12	781	B. saida	16.0	17.0	0.019	14	480	B. saida	19.0	21.0	0.037
12	783	B. saida	16.0	17.0	0.025	14	481	B. saida	18.5	20.0	0.040
12	784	B. saida	16.0	17.0	0.021	14	483	B. saida	16.0	17.0	0.021
12	785	B. saida	14.0	15.0	0.015	14	484	B. saida	12.5	13.5	0.012
12	786	B. saida	17.0	18.0	0.026	14	485	B. saida	17.0	18.0	0.029
13	1259	B. saida	14.5	15.5	0.013	14	486	B. saida	15.0	16.0	0.024
13	1260	B. saida	14.5	15.5	0.018	14	487	B. saida	17.5	19.0	0.031
13	1261	B. saida	15.0	16.0	0.014	14	488	B. saida	14.0	15.0	0.015
13	1262	B. saida	17.5	18.5	0.022	14	489	B. saida	15.5	16.5	0.016
13	1263	B. saida	15.0	16.0	0.014	14	490	B. saida	16.5	17.5	0.024
13	1266	B. saida	16.0	17.0	0.020	14	491	B. saida	15.0	16.0	0.022
13	1268	B. saida	16.0	17.0	0.016	14	492	B. saida	14.0	15.0	0.015
13	1270	B. saida	16.0	17.0	0.016	14	493	B. saida	14.5	15.5	0.020
13	1281	B. saida	14.5	15.5	0.014	14	494	B. saida	17.0	18.5	0.028
14	449	B. saida	16.0	17.0	0.013	14	495	B. saida	12.0	13.0	0.008
14	450	B. saida	16.0	17.0	0.024	14	496	B. saida	17.0	19.5	0.031
14	451	B. saida	14.0	15.0	0.018	14	497	B. saida	13.5	14.5	0.016
14	452	B. saida	15.0	16.0	0.020	14	498	B. saida	16.0	17.0	0.022
14	453	B. saida	15.5	16.5	0.022	14	499	B. saida	13.0	14.0	0.012
14	454	B. saida	16.5	17.5	0.021	14	500	B. saida	18.0	19.0	0.038
14	455	B. saida	17.0	18.0	0.026	14	501	B. saida	14.0	15.0	0.014
14	456	B. saida	14.0	15.0	0.012	14	502	B. saida	16.0	17.0	0.028
14	457	B. saida	15.0	16.0	0.014	14	503	B. saida	12.0	13.0	0.008
14	458	B. saida	16.5	17.5	0.033	14	504	B. saida	19.0	20.5	0.039
14	459	B. saida	15.0	16.0	0.021	14	505	B. saida	11.0	12.0	0.007
14	460	B. saida	16.0	17.0	0.022	14	506	B. saida	16.0	17.0	0.022
14	461	B. saida	15.0	16.0	0.016	14	507	B. saida	15.0	16.0	0.021

Table 11. Continued.

PLANKTON SAMPLE NUMBER	FISH SAMPLE NUMBER	SPECIES	STANDARD LENGTH (mm)	TOTAL LENGTH (mm)	WET WEIGHT (g)
12	762	B. saida	15.5	16.5	0.019
12	763	B. saida	15.5	16.5	0.016
12	764	B. saida	18.5	20.0	0.030
12	765	B. saida	16.0	17.0	0.016
12	766	B. saida	16.0	17.0	0.018
12	767	B. saida	15.0	16.0	0.017
12	768	B. saida	17.5	19.0	0.028
12	769	B. saida	19.0	20.5	0.036
12	770	B. saida	18.0	19.5	0.036
12	772	B. saida	16.0	17.0	0.018
12	773	B. saida	14.0	15.0	0.017
12	774	B. saida	17.0	18.0	0.024
12	775	B. saida	16.0	17.0	0.020
12	776	B. saida	13.5	14.5	0.011
12	778	B. saida	16.0	17.0	0.018
12	779	B. saida	17.0	18.0	0.020
12	780	B. saida	14.5	15.5	0.013
12	781	B. saida	16.0	17.0	0.019
12	783	B. saida	16.0	17.0	0.025
12	784	B. saida	16.0	17.0	0.021
12	785	B. saida	14.0	15.0	0.015
12	786	B. saida	17.0	18.0	0.026
13	1259	B. saida	14.5	15.5	0.013
13	1260	B. saida	14.5	15.5	0.018
13	1261	B. saida	15.0	16.0	0.014
13	1262	B. saida	17.5	18.5	0.022
13	1263	B. saida	15.0	16.0	0.014
13	1266	B. saida	16.0	17.0	0.020
13	1268	B. saida	16.0	17.0	0.016
13	1270	B. saida	16.0	17.0	0.016
13	1281	B. saida	14.5	15.5	0.014
14	449	B. saida	16.0	17.0	0.013
14	450	B. saida	16.0	17.0	0.024
14	451	B. saida	14.0	15.0	0.018
14	452	B. saida	15.0	16.0	0.020
14	453	B. saida	15.5	16.5	0.022
14	454	B. saida	16.5	17.5	0.021
14	455	B. saida	17.0	18.0	0.026
14	456	B. saida	14.0	15.0	0.012
14	457	B. saida	15.0	16.0	0.014
14	458	B. saida	16.5	17.5	0.033
14	459	B. saida	15.0	16.0	0.021
14	460	B. saida	16.0	17.0	0.022
14	461	B. saida	15.0	16.0	0.016
14	462	B. saida	15.0	16.0	0.017
14	463	B. saida	16.0	17.0	0.025
14	464	B. saida	14.0	15.0	0.017
14	465	B. saida	17.0	18.0	0.029
14	466	B. saida	14.5	15.5	0.013
14	467	B. saida	17.5	19.0	0.030
14	468	B. saida	15.5	16.5	0.024
14	469	B. saida	17.0	18.0	0.034
14	470	B. saida	16.5	17.5	0.021
14	471	B. saida	12.0	13.0	0.010
14	472	B. saida	16.0	17.0	0.017
14	473	B. saida	18.0	19.5	0.031
14	474	B. saida	14.5	15.5	0.020
14	475	B. saida	15.5	16.5	0.023
14	477	B. saida	16.0	17.0	0.025
14	478	B. saida	16.0	17.0	0.024
14	479	B. saida	15.0	16.0	0.019
14	480	B. saida	19.0	21.0	0.037
14	481	B. saida	18.5	20.0	0.040
14	483	B. saida	16.0	17.0	0.021
14	484	B. saida	12.5	13.5	0.012
14	485	B. saida	17.0	18.0	0.029
14	486	B. saida	15.0	16.0	0.024
14	487	B. saida	17.5	19.0	0.031
14	488	B. saida	14.0	15.0	0.015
14	489	B. saida	15.5	16.5	0.016
14	490	B. saida	16.5	17.5	0.024
14	491	B. saida	15.0	16.0	0.022
14	492	B. saida	14.0	15.0	0.015
14	493	B. saida	14.5	15.5	0.020
14	494	B. saida	17.0	18.5	0.028
14	495	B. saida	12.0	13.0	0.008
14	496	B. saida	17.0	19.5	0.031
14	497	B. saida	13.5	14.5	0.016
14	498	B. saida	16.0	17.0	0.022
14	499	B. saida	13.0	14.0	0.012
14	500	B. saida	18.0	19.0	0.038
14	501	B. saida	14.0	15.0	0.014
14	502	B. saida	16.0	17.0	0.028
14	503	B. saida	12.0	13.0	0.008
14	504	B. saida	19.0	20.5	0.039
14	505	B. saida	11.0	12.0	0.007
14	506	B. saida	16.0	17.0	0.022
14	507	B. saida	15.0	16.0	0.021

Table 11. Continued.

PLANKTON SAMPLE NUMBER	FISH SAMPLE NUMBER	SPECIES	STANDARD LENGTH (mm)	TOTAL LENGTH (mm)	WET WEIGHT (g)
16	45	B. saida	9.5	9.5	0.000
16	46	B. saida	12.5	13.5	0.007
16	1338	T. pingelli	20.5	23.0	0.062
20	220	B. saida	13.0	13.0	0.006
20	221	B. saida	17.0	18.5	0.031
20	222	B. saida	17.0	18.5	0.026
20	223	B. saida	18.0	19.0	0.021
20	225	B. saida	15.0	16.0	0.012
20	228	B. saida	17.0	18.0	0.021
20	229	B. saida	16.5	17.5	0.017
20	230	B. saida	13.0	13.0	0.008
20	233	B. saida	13.0	13.0	0.004
20	1086	B. saida	18.0	19.0	0.023
20	1087	B. saida	13.5	14.5	0.012
20	1088	B. saida	14.0	15.0	0.015
20	1090	B. saida	13.5	14.5	0.012
20	1091	B. saida	16.0	17.0	0.021
20	1092	B. saida	15.5	16.5	0.021
20	1093	B. saida	15.0	16.0	0.015
21	2	M. quadricornis	15.0	17.5	0.019
21	3	M. quadricornis	14.5	16.0	0.016
21	4	M. quadricornis	15.5	17.5	0.021
21	5	M. quadricornis	14.0	16.0	0.013
21	6	M. quadricornis	14.0	16.0	0.011
21	7	M. quadricornis	12.5	14.0	0.009
21	8	M. quadricornis	14.0	16.0	0.014
21	9	M. quadricornis	13.5	15.0	0.011
21	10	M. quadricornis	13.0	14.0	0.005
21	11	M. quadricornis	7.0	7.0	0.000
29	219	B. saida	31.0	34.0	0.187
31	235	B. saida	23.0	25.0	0.071
32	580	B. saida	27.0	29.0	0.122
32	582	B. saida	27.0	29.0	0.154
32	583	B. saida	28.0	30.0	0.147
32	584	B. saida	22.0	24.0	0.068
32	585	B. saida	33.0	37.0	0.270
32	586	B. saida	24.0	26.0	0.089
32	590	B. saida	27.0	30.0	0.137
32	593	B. saida	30.5	33.5	0.218
32	594	B. saida	24.0	26.0	0.104
32	595	B. saida	25.0	27.0	0.121
32	598	B. saida	30.0	33.0	0.188
32	600	B. saida	30.5	33.0	0.168
32	601	B. saida	30.0	32.5	0.170
32	602	B. saida	34.0	37.0	0.277
32	603	B. saida	22.5	24.5	0.071
32	604	B. saida	25.0	27.0	0.094
32	1318	G. tricuspis	20.0	25.0	0.105
34	430	B. saida	29.0	32.0	0.129
34	431	B. saida	31.0	34.0	0.221
34	433	B. saida	25.0	27.0	0.086
34	438	B. saida	22.0	24.0	0.066
34	439	B. saida	26.5	29.5	0.112
34	440	B. saida	27.0	29.5	0.123
34	441	B. saida	31.0	34.0	0.194
34	442	B. saida	22.5	25.0	0.080
34	447	B. saida	21.5	23.5	0.059
36	199	B. saida	28.0	31.0	0.155
36	205	B. saida	22.0	24.0	0.093
36	206	B. saida	29.0	32.0	0.172
36	208	B. saida	26.0	28.0	0.120
36	210	B. saida	20.0	22.0	0.062
36	211	B. saida	26.0	28.0	0.128
36	212	B. saida	26.0	28.0	0.121
36	214	B. saida	19.5	21.5	0.050
36	217	B. saida	20.0	22.0	0.061
40	1336	G. tricuspis	21.0	24.5	0.127

Table 12. Mean length and weight of larval B. saida for July and September, 1984.

	JULY				SEPT			
	Mean	Range	Stnd Dev	N	Mean	Range	Stnd Dev	N
Stnd length	13.4	5.5-30.0	2.7	1061	26.3	19.5-34.0	3.8	36
Total length	14.3	6.5-32.5	3.0	1061	28.7	21.5-37.0	4.2	36
Wet weight	0.015	0.007-0.188	0.010	1061	0.130	0.050-0.277	0.058	36

Table 13. Mean length and weight of larval G. tricuspis for July and September, 1984.

	JULY				SEPT			
	Mean	Range	Stnd Dev	N	Mean	Range	Stnd Dev	N
Stnd length	13.6	11.5-15.5	1.6	10	20.5	20.0-21.0	0.5	2
Total length	15.5	12.5-17.5	2.0	10	24.8	24.5-25.0	0.25	2
Wet weight	0.020	0.006-0.033	0.009	10	0.116	0.105-0.127	0.011	2

Table 14. Mean length and weight of larval M. quadricornis for July, 1984.

	JULY			
	Mean	Range	Stnd Dev	N
Stnd length	13.3	7.0-15.5	2.26	10
Total length	14.9	7.0-17.5	2.87	10
Wet weight	0.119	<0.001-0.021	0.006	10

Table 15. Standard length and stomach fullness for larval fish captured in the Beaufort Sea, 1984.

Plankton Sample Number	Fish Sam No	Species	Stnd Length (mm)	Stomach Taken	Stomach Fullness
1	1681	M. quadricornis	11.0	W	1
2	1682	M. quadricornis	10.0	W	0
2	1683	M. quadricornis	11.0	W	3
4	1501	B. saida	10.5	W	3
4	1502	B. saida	11.5	W	5
4	1503	B. saida	14.5	W	5
4	1504	B. saida	14.0	W	5
4	1505	B. saida	11.5	W	3
4	1506	B. saida	11.0	W	3
4	1507	B. saida	14.0	W	5
4	1508	B. saida	11.5	W	1
4	1509	B. saida	15.5	S	6
4	1669	G. tricuspis	11.5	W	5
4	1670	G. tricuspis	11.5	W	3
4	1671	G. tricuspis	11.0	W	3
4	1672	G. tricuspis	13.5	W	3
4	1673	G. tricuspis	14.0	W	3
4	1674	G. tricuspis	14.5	W	5
4	1684	G. tricuspis	13.0	W	3
4	1689	Liparis sp.	20.5	S	6
4	1690	Liparis sp.	13.0	W	5
4	1691	Liparis sp.	9.0	W	3
5	1675	G. tricuspis	11.0	W	3
6	1528	B. saida	8.5	W	1
6	1529	B. saida	7.5	W	3
6	1530	B. saida	9.0	W	3
6	1531	B. saida	8.5	W	3
6	1532	B. saida	8.5	W	3
8	1533	B. saida	11.5	W	5
8	1534	B. saida	12.5	W	5
8	1535	B. saida	13.0	W	5
8	1536	B. saida	14.0	W	5
8	1537	B. saida	14.5	S	6
8	1538	B. saida	14.5	S	4
8	1539	B. saida	15.0	S	6
8	1540	B. saida	14.5	S	4
8	1541	B. saida	15.0	S	4
8	1542	B. saida	16.0	S	4
9	1543	B. saida	*	W	5
9	1544	B. saida	10.5	W	3
9	1545	B. saida	9.0	W	0
9	1546	B. saida	10.0	W	1
9	1547	B. saida	9.5	W	5

Table 15. Continued.

Plankton Sample Number	Fish Sam No	Species	Stnd Length (mm)	Stomach Taken	Stomach Fullness
9	1548	B. saida	9.5	W	3
9	1549	B. saida	10.5	W	3
9	1550	B. saida	11.5	W	3
9	1551	B. saida	10.5	W	5
9	1552	B. saida	12.5	W	3
12	1553	B. saida	15.0	W	3
12	1554	B. saida	17.0	W	0
12	1555	B. saida	16.0	W	3
12	1556	B. saida	16.0	W	3
12	1557	B. saida	16.5	W	1
12	1558	B. saida	18.5	S	4
12	1559	B. saida	17.0	S	4
12	1560	B. saida	17.5	S	0
12	1561	B. saida	17.0	S	2
12	1562	B. saida	18.5	S	4
12	1676	G. tricuspis	12.0	W	1
12	1677	G. tricuspis	11.0	W	1
13	1563	B. saida	15.5	W	4
13	1565	B. saida	15.5	W	1
13	1567	B. saida	9.0	W	1
13	1569	B. saida	12.5	W	1
13	1570	B. saida	12.5	W	3
13	1572	B. saida	14.0	W	1
13	1574	B. saida	15.5	W	3
13	1577	B. saida	14.5	W	3
13	1581	B. saida	17.0	W	5
13	1583	B. saida	15.5	W	1
14	1692	Liparis sp.	10.5	W	3
15	1589	B. saida	10.0	W	5
15	1590	B. saida	11.0	W	5
15	1591	B. saida	11.0	W	5
15	1592	B. saida	11.5	W	5
15	1593	B. saida	11.5	W	5
15	1594	B. saida	13.0	W	5
15	1595	B. saida	13.5	W	3
15	1596	B. saida	15.0	W	5
16	1678	G. tricuspis	14.0	W	1
16	1688	M. quadricornis	11.5	W	1
19	1597	B. saida	12.5	W	3
19	1598	B. saida	13.0	W	3
19	1599	B. saida	14.0	W	3
19	1600	B. saida	14.5	W	5
19	1601	B. saida	14.5	W	3

Table 15. Continued.

Plankton Sample Number	Fish Sam No	Species	Stnd Length (mm)	Stomach Taken	Stomach Fullness
19	1602	B. saida	16.0	W	6
19	1603	B. saida	16.5	S	2
19	1604	B. saida	17.0	S	3
20	1679	G. tricuspis	14.0	W	3
20	1686	M. quadricornis	11.5	W	1
20	1687	M. quadricornis	12.0	W	1
21	1685	M. quadricornis	15.5	W	1
32	1605	B. saida	11.0	W	3
32	1608	B. saida	24.5	S	6
32	1610	B. saida	25.5	S	4
32	1613	B. saida	25.5	S	6
32	1615	B. saida	23.5	S	6
32	1617	B. saida	26.0	S	5
32	1619	B. saida	28.5	S	3
32	1621	B. saida	*	S	4
32	1623	B. saida	30.0	S	6
32	1627	B. saida	34.0	S	2
34	1628	B. saida	18.5	S	1
34	1630	B. saida	21.0	S	4
34	1632	B. saida	25.0	S	5
34	1634	B. saida	20.5	S	4
34	1636	B. saida	24.5	S	4
34	1638	B. saida	25.5	S	6
34	1639	B. saida	26.0	S	2
34	1641	B. saida	38.5	S	6
34	1645	B. saida	28.5	S	2
34	1647	B. saida	32.0	S	4
36	1648	B. saida	21.0	S	5
36	1650	B. saida	21.0	S	4
36	1652	B. saida	22.0	S	6
36	1654	B. saida	21.0	S	6
36	1656	B. saida	26.5	S	4
36	1658	B. saida	25.0	S	4
36	1660	B. saida	26.0	S	4
36	1662	B. saida	27.5	S	4
36	1664	B. saida	28.5	S	4
36	1666	B. saida	30.0	S	4
36	1680	G. tricuspis	*	S	3
38	1667	B. saida	20.0	S	1
40	1668	B. saida	24.0	S	2

* - No measurement taken
W - Intestine (stomach not yet developed)
S - Stomach

Table 16. Food items totals for B. salda captured in the Canadian Beaufort Sea Shelf, 1984.

Plankton Sem. No.	Fish Sem. No.	Coscinodiscus sp. CC	Coscinodiscus sp. TL	Peridinium sp. CC	Peridinium sp. TL	Ceratium sp. CC	Ceratium sp. TL	Rotifer (Unid.) CC	Rotifer (Unid.) TL	Polychaete (Unid.) CC	Polychaete (Unid.) TL	Arcartia clausi CC	Arcartia clausi TL	Calanus glacialis CC	Calanus glacialis TL	Calanus hyperboreus CC	Calanus hyperboreus TL	Calanus sp. CC	Calanus sp. TL	Derjuginia tollie CC	Derjuginia tollie TL	Eurytemora sp. CC	Eurytemora sp. TL	Limnocalanus macrurus CC	Limnocalanus macrurus TL	Microstella rosea CC	Microstella rosea TL	Dithona similis CC	Dithona similis TL	Oncaea borealis CC	Oncaea borealis TL	Pseudocalanus minutus CC	Pseudocalanus minutus TL	Microcalanus pyneaus CC	Microcalanus pyneaus TL	Calanoida CC	Calanoida TL	Cyclopoida CC	Cyclopoida TL	Apharusa glacialis CC	Apharusa glacialis TL	Cilona limacina CC	Cilona limacina TL	Limacina helicina CC	Limacina helicina TL	Bivalvia (Unid.) CC	Bivalvia (Unid.) TL	Oikopleura vanhoeffeni CC	Oikopleura vanhoeffeni TL	Fritillaria borealis CC	Fritillaria borealis TL	Eggs (Unid.) CC	Eggs (Unid.) TL
4	1501																																			Ca	1									La	2	Ju	10				
4	1502																											C8	4							Ps	3									La	1						
4	1503																															C3	1													La	1						
																																Cf	2																				
																																Ca	28																				
4	1504																											Cf	4			Ca	80			N2	1																
																																Cm	1																				
																																Cf	6																				
																																C3	1																				
4	1505																																													La	3	Ju	3			Ca	1
4	1506		1																									Cf	1	Cf	1					Ps	4																
4	1507																											Cf	2			C2	1															Ju	5				
																												C7	1			Cm	1																				
																												C8	7			Ca	17																				
																												Ca	10																								
4	1508																																													La	1						
4	1509																											Ca	10			C3	1																				
																												C8	2			C5	2																				
																												Cf	1			Cf	3																				
																																Ca	35																				
6	1528																																			N2	2																
6	1529																																			N2	5																
6	1530																																			N2	2																
6	1531						1																													N2	4																
6	1532																															Ca	1			Ca	2																
																																				N2	6																
8	1533																													C7	1					N3	3																
																																				N2	61																
																																				N1	6																
8	1534																															C2	1			N2	30																
																																Cf	2																				
																																Ca	50																				
8	1535																															Ca	32			N3	1	N2	1														
																																Cf	2			N2	18																
																																				N1	1																
8	1536																			C2	2							C8	1			Cf	1			N2	9																
																				C3	1											Ca	32			N3	2																
8	1537																															Cf	2			N1	14																
																																Ca	23			N2	33																
8	1538																											C8	2			Ca	3			N2	33											Ju	1				
																																				N1	4																
8	1539																															Cf	4			N1	24																
																																Ca	4			N2	93																
																																				N3	4																
8	1540															Cf	1															Cf	1			N3	1																

Table 16. Continued.

Plankton Sam. No.	Fish Sam. No.	Coscinodiscus sp. CC	Coscinodiscus sp. TL	Peridinium sp. CC	Peridinium sp. TL	Ceratium sp. CC	Ceratium sp. TL	Rotifer (Unid.) CC	Rotifer (Unid.) TL	Polycheata (Unid.) CC	Polycheata (Unid.) TL	Acartia clausi CC	Acartia clausi TL	Calanus glacialis CC	Calanus glacialis TL	Calanus hyperboreus CC	Calanus hyperboreus TL	Calanus sp. CC	Calanus sp. TL	Derjugina tollie CC	Derjugina tollie TL	Eurytemora sp. CC	Eurytemora sp. TL	Limnocalanus macrurus CC	Limnocalanus macrurus TL	Microstella rosea CC	Microstella rosea TL	Oithona similis CC	Oithona similis TL	Oncaea borealis CC	Oncaea borealis TL	Pseudocalanus minutus CC	Pseudocalanus minutus TL	Microcalanus pygmaeus CC	Microcalanus pygmaeus TL	Calanoida CC	Calanoida TL	Cyclopoida CC	Cyclopoida TL	Aphanusa glacialis CC	Aphanusa glacialis TL	Clione limacina CC	Clione limacina TL	Limacina helicina CC	Limacina helicina TL	Bivalvia (Unid.) CC	Bivalvia (Unid.) TL	Oikopleura vanhoeffeni CC	Oikopleura vanhoeffeni TL	Fritillaria borealis CC	Fritillaria borealis TL	Eggs (Unid.) CC	Eggs (Unid.) TL
																																				N2	18																
																																				N1	8																
8	1541																											C7				C1	2			N1	5	N2	2														
																																C2	2			N2	8																
																																Ce	16			Ce	4																
8	1542																											C8	1			Cf	1			Ce	15																
																												C7	1			Ce	50			N1	1																
9	1543																																			N1	1	N1	2														
																																				N2	17																
9	1544																																			Ce	4																
																																				N2	18																
9	1546																																			N2	1																
9	1547																													C7	1					N1	10																
																																				N2	79																
																																				N5	2																
																																				Ce	3																
9	1548																																			N2	6									Lm	1						
9	1549																																			N2	5																
																																				Ce	8																
9	1550																																			N2	14																
																																				N1	4																
9	1551																															Cf	1			N2	5																
																																Ce	24																				
9	1552																											C7	1							N2	5																
																												C8	2							Ce	5																
12	1553																							C5	2																												
12	1555																																			N2	1																
																																				Ps	1																
12	1556																							Cf	2											N1	2																
																																				N2	2																
																																				Ce	2																
12	1557																							Ps	1																												
12	1558																							C4	3											N2	1																
12	1559																							C5	1																												
12	1561																							C4	1											N2	1																
																																				Ce	2																
12	1562																							C4	3											N2	1																
																								Ps	1																												
13	1563																							C5	1							Cf	1																				
																						Ps	1							Ce	15																				
13	1565																																			N2	1																
																																				Ce	1																

Table 16. Continued.

Plankton Sem. No.	Fish Sem. No.	Coscinodiscus sp. CC	Coscinodiscus sp. TL	Peridinium sp. CC	Peridinium sp. TL	Ceratium sp. CC	Ceratium sp. TL	Rotifer (Unid.) CC	Rotifer (Unid.) TL	Polychaete (Unid.) CC	Polychaete (Unid.) TL	Arcartia clausi CC	Arcartia clausi TL	Calanus glacialis CC	Calanus glacialis TL	Calanus hyperboreus CC	Calanus hyperboreus TL	Calanus sp. CC	Calanus sp. TL	Derjuginia tollie CC	Derjuginia tollie TL	Eurytemora sp. CC	Eurytemora sp. TL	Limnocalanus macrurus CC	Limnocalanus macrurus TL	Microstella rosea CC	Microstella rosea TL	Oithona similis CC	Oithona similis TL	Oncaea borealis CC	Oncaea borealis TL	Pseudocalanus minutus CC	Pseudocalanus minutus TL	Microcalanus pymaeus CC	Microcalanus pymaeus TL	Calanoida CC	Calanoida TL	Cyclopoida CC	Cyclopoida TL	Aphorusa glacialis CC	Aphorusa glacialis TL	Cilona limacina CC	Cilona limacina TL	Limacina helicina CC	Limacina helicina TL	Bivalvia (Unid.) CC	Bivalvia (Unid.) TL	Oikopleura vanhoeffeni CC	Oikopleura vanhoeffeni TL	Fritillaria borealis CC	Fritillaria borealis TL	Eggs (Unid.) CC	Eggs (Unid.) TL
13	1567																																			Ca	6																
13	1569																																			N2	3																
13	1570																																			N1	10																
																																				N2	22																
																																				N3	1																
13	1572																																			N2	4																
13	1574																							C3	1											N2	2																
																								Ps	1																												
13	1577							Ps	1															Ps	1											N2	4															Ce	2
13	1581																							C5	2											N2	9																
13	1583																																			N2	5																
15	1589																																			N2	15																
																																				N1	41																
15	1590																																			N1	35																
																																				N2	10																
15	1591																																			N2	13																
																																				N1	32																
15	1592																																			N1	26																
15	1593																																			N2	22	N1	1														
																																				N1	26																
15	1594																																			N1	45																
																																				N2	29																
																																				N3	4																
15	1595							Ps	1																											N1	13																
																																				N2	10																
15	1596																																			N1	41																
																																				N2	39																
																																				N3	1																
19	1597																																			N2	1																
																																				Ps	1																
19	1598																																			N1	9																
																																				N2	5																
19	1599																											CB	1							N1	3																
																																				N2	6																
19	1600																															Cf	1			N1	10																
																																				N2	24																
																																				N3	3																
19	1601													C1	1													CB	1							Ps	1																
19	1602																															Cf	5																				
																																Ce	157																				
19	1603																																			N1	2																
																																				N2	1																
19	1604																							Cf	1																												
32	1605																															Ce	34													La	2						

Table 16. Continued.

Plankton Sam. No.	Fish Sam. No.	Coscinodiscus sp.	Peridinium sp.	Ceratium sp.	Rotifer (Unid.)	Polycheate (Unid.)	Acartia clausi	Calanus glacialis	Calanus hyperboreus	Calanus sp.	Derjugina tolla	Eurytemora sp.	Limnocalanus macrurus	Microstella rosea	Oithona similis	Oncaea borealis	Pseudocalanus minutus	Microcalanus pygmaeus	Calanoida	Cyclopoida	Aphanta glacialis	Cilliata (Unid.)	Limacina helicina	Bivalvia (Unid.)	Oikopleura vanhoeffeni	Fritillaria borealis	Eggs (Unid.)
		CC TL	CC TL	CC TL	CC TL	CC TL	CC TL	CC TL	CC TL	CC TL	CC TL	CC TL	CC TL	CC TL	CC TL	CC TL	CC TL	CC TL	CC TL	CC TL	CC TL	CC TL	CC TL	CC TL	CC TL	CC TL	CC TL
32	1608		1		Ps 3		Cf 1	C1 1							C7 4	Ca 1	C1 91		N1 44	N2 1			Le 1				
															Ca 1	C7 1	C2 34		N2 281								
32	1610	3															C3 7		N3 7								
															Ca 1	C7 1	C4 1		N2 108								
															C7 2		C3 24		N1 9								
																	C2 55										
32	1613	5			Ps 1	P1 4		C1 1				C2 1					C1 36										
															C7 9		C1 71		N1 16	N1 6				Le 5	Ju 3		
															Ca 5		C2 21		N1 413								
																	C3 2		N3 2								
32	1615				Ps 1			C1 1											Ps 57								
															C7 1	C7 1	C1 18		N3 6								
																	C7 1		N1 3								
																	C4 19		N2 72								
																	C2 29		Ps 42								
																	C5 1										
																	C3 68										
32	1617							C2 1									C1 22		Ps 148								
								C3 1							C7 1		C2 67		N1 1						Ju 2		
								C4 1									C3 98		N2 25								
																	C4 4										
32	1619						C5 1	C2 1	C4 1								Ca 1										
																	Ca 7	D4 1	N3 1	N1 2		Le 1					
																	C7 2		N2 45								
																	C5 1		Ps 100								
																	C4 4										
																	C3 19										
																	C2 12										
																	C1 3										
32	1621							C1 1																			
								C4 1							C7 1	C7 2	C1 6		N1 1	N1 1					Ju 1		
															Ca 5	Ca 1	C2 10		N2 70								
																C7 5	C3 30		Ps 54								
32	1625																C4 2										
																	Ca 51		N2 17								
																	C7 8		Ps 114								
																	Ca 2										
																	C4 80										
																	C3 209										
																	C2 124										
																	C1 16										
32	1627						Cf 3	C1 2									C1 5		Ps 3								
							Ca 1	C2 1									C2 6		N1 15								
								C3 1									C3 4		N2 77								
																	C4 3		N3 27								
34	1629																								1		

Table 16. Continued.

Plankton Sam. No.	Fish Sam. No.	Coscinodiscus sp.	Peridinium sp.	Ceratium sp.	Rotifer (Unid.)	Polychaete (Unid.)	Acartia clausi	Calanus glacialis	Calanus hyperboreus	Calanus sp.	Derjugintia hotila	Eurytemora sp.	Limnocalanus macrurus	Microsetella rosea	Oithona similis	Oncaea borealis	Pseudocalanus minutus	Microcalanus pygmaeus	Calanoida	Cyclopoida	Aphanusa glacialis	Cliona limacina	Limacina helicina	Bivalvia (Unid.)	Oikopleura vanhoeffeni	Fritillaria borealis	Eggs (Unid.)
		OC FL	OC FL	OC FL	OC FL	OC FL	OC FL	OC FL	OC FL	OC FL	OC FL	OC FL	OC FL	OC FL	OC FL	OC FL	OC FL	OC FL	OC FL	OC FL	OC FL	OC FL	OC FL	OC FL	OC FL	OC FL	OC FL
34	1630															C7 2			N5 1	N1 2							
																			N2 75	N2 1							
																			N1 24								
																			Ca 6								
34	1632												C1 1		C8 1	C1 2	C1 1		Pa 44								
																Ca 1	C2 6		N2 56								
																	C3 7										
																	C4 6										
34	1634				Pa 6		C2 3												Pa 1								Ca 23
							C5 1												N1 16								
																			N2 44								
34	1636				Pa 1		C2 1												N5 2								Ca 3
																			N2 40								
																			N1 9								
34	1638						C1 2	C2 1							C7 2	Ca 1	C1 1		Pa 17								
							C2 9	C3 1									C2 15		N2 6								
							C5 22	C4 12									C3 22		Ca 8								
								C5 9									C4 9										
								C1 1									C5 1										
								Ca 4																			
34	1639							C3 1								C7 1			N2 19								
																			N5 1								
34	1641							C5 4																			
								C1 1																			
34	1645									Pa 1									N1 2								
																			N2 1								
36	1647																				3						
36	1648	2			Pa 5		C2 2	C1 2								C7 3	C3 6		N2 50					La 1			Ca 3
							C3 2									Ca 1	C2 12		N5 3								
							C4 4										C4 1		Pa 34								
							C5 1																				
							C1 2																				
36	1650						C1 1												N5 2						Ju 2		Ca 1
							C2 2												N2 42								
							C3 1												N1 16								
							C4 1																				
							C5 1																				
36	1652				Pa 6		C1 5												N1 62					La 1	Ju 1	7	Ca 4
																			N2 122								
																			N5 9								
36	1654				Pa 2		C1 4												N5 5						Ju 8		Ca 4
							C2 1												N2 153								
																			N1 70								
																			Pa 2								
36	1656		5		C1 3										C8 1				N1 58					La 2	Ju 7	2	Ca 1

Table 16. Continued.

Plankton Sam. No.	Fish Sam. No.	Coscinodiscus sp.		Peridinium sp.		Ceratium sp.		Rotifer (Unid.)		Polychaete (Unid.)		Acartia clausi		Calanus glacialis		Calanus hyperboreus		Calanus sp.		Derjugintia tollia		Euryhemora sp.		Limnocalanus macrurus		Microsetella rosea		Oithona similis		Oncaea borealis		Pseudocalanus minutus		Microcalanus pygmaeus		Calanoida		Cyclopoida		Aphanizomenon glacialis		Clione limacina		Limacina helicina		Bivalvia (Unid.)		Oikopleura vanhoeffeni		Fritillaria borealis		Eggs (Unid.)	
		CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL
												C2	3																									N2	76														
												C3	1																									N3	2														
36	1658		1					Ps	1			C1	9													C1	1			C7	1					N3	2											Ju	4		6	Ce	1
												C2	3																	C1	1					N2	76														
												C3	1																							N1	39														
												C4	1																																						
36	1660				1					La	3	C1	4													C1	1			Cm	1					N1	12											Ju	19			Ce	6
												C2	2																							N2	28														
36	1662											C2	1	C3	1														1	C7	1					N3	4	N1	1									Ju	3		11	Ce	6
												C1	2																							N2	32	N2	1														
																																				N1	12														
36	1664							Ps	2	La	2	Ps	14															C1	1	C7	1					N1	53	N1	1									Ju	18		17	Ce	4
												C2	1															C7	1							N2	116														
																																				N3	11														
36	1666									Ps	6	C2	3	C1	1																					Ps	3											Ju	16		5	Ce	13
												C1	1																							N1	39														
																																				N2	154														
																																				N3	7														
38	1667																																			N2	3													Ce	1
40	1668													C5	1											C1	1							C2	1	N2	8														
																																				N3	4														

CC = comment code
TL = total

Table 17. Food item totals for *M. quadricornis* captured in the Canadian Beaufort Sea Shelf, 1984.

Planton Sam. No.	Fish Sam. No.	Limnocalanus macrurus		Calanoida		Cyclopoida	
		CC	TL	CC	TL	CC	TL
1	1681					N2	3
2	1683			N1	6		
				N3	19		
16	1688	Ps	1				
20	1686			Ps	2		
20	1687			Ps	1		
21	1685	Ps	1				

CC = comment code
TL = total

Table 18. Food item totals for G. tricuspis captured in the Canadian Beaufort Sea Shelf, 1984.

Plankton SAM No.	Fish SAM No.	Diatom (Unid.)		Coscinodiscus sp.		Peridinium sp.		Polychaete (Unid.)		Limnocalanus macrurus		Microstella rosea		Oithona similis		Oncaea borealis		Pseudocalanus minutus		Calanoida		Cyclopina sp.		Harpacticoida		Cirripedia (Unid.)		Apherusa glacialis		Bivalvia (Unid.)		Stellerold (Unid.)		Oikopleura vanhoeffeni		Eggs (Unid.)	
		CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL	CC	TL
4	1669				19													Ce	21							La	1			La	9					Ce	15
																		Cf	1																		
4	1670				6													Cf	4							La	1			La	2						
																		Ce	3																	Ce	1
4	1671				26		1					Cf	1					Ps	1																		
4	1672																	Ce	5																		
																		Ps	4																		
4	1673				1															Ps	2					Na	1			La	1					Ce	3
4	1674				102													Ce	16													La	4				
																		Cf	3																		
4	1684				10													Cf	1							Na	1							Ju	10	Ce	1
																		Ce	4																		
5	1675																	Ce	2	N3	1					Na	1										
																		Cf	2																		
12	1676		6		6			Ju	1																												
12	1677				5					Ps	1					C7	1	Cf	1			Cf	1														
																		Ce	5			Ce	35														
16	1678							Ju	1					C7	1			Ps	1					N2	1												
20	1679									Ps	2																										
36	1680																												2								

CC = comment code
TL = total

Table 19. Food item totals for Liparis sp. captured in the Canadian Beaufort Sea Shelf, 1984.

Plankton Sam. No.	Fish Sam. No.	Polychaete (Unid.)		Oncaea borealis		Pseudocalanus minutus		Apherusa glacialis		Gammarus sp.	
		CC	TL	CC	TL	CC	TL	CC	TL	CC	TL
4	1689					C2	1		8	Ju	1
4	1690					Cf Ce	14 125				
4	1691	Ju	1	Cm	1	C5	1				
14	1692	Ju	10								

CC = comment code
TL = total

Table 20. List of comment codes used in Tables 16 to 19.

Code	Comment
Ps	poor condition
Pl	Polychaete larvae
La	larva - no specific taxon
Na	nauplii - no specific taxon
Ju	juvenile - no specific taxon
C1	copepodite I
C2	copepodite II
C3	copepodite III
C4	copepodite IV
C5	copepodite V
Cf	adult female (copepodite VI)
Cm	adult male (copepodite VI)
N1	nauplius < 200um
N2	nauplius 200 - 400um
N3	nauplius > 400um
C7	copepodite < 400um (Cyclopoids and Harpacticoids only)
C8	copepodite 400 - 800um (Cyclopoids and Harpacticoids only)
Ce	copepod eggs

Table 21. Frequency of occurrence and percent by number of food items found in *B. saida* stomachs.

Food Item		July Freq Occur	July % Num	Sept Freq Occur	Sept % Num
Diatoms:	*Coscinodiscus sp.*	1.5	0.1	12.5	0.2
	Peridinium sp.			9.4	0.1
	Ceratium sp.	1.5	0.1		
Rotifers:	Unid.	3.0	0.1	34.4	0.6
Polychaetes:	Unid.			9.4	0.2
Copepoda:	*Arcartia clausi*			59.4	2.2
	Calanus glacialis	3.0	0.1	46.9	1.0
	Calanus hyperboreus			3.1	<0.1
	Calanus sp.			3.1	<0.1
	Eurytemora sp.			3.1	<0.1
	Derjuginia tolli	1.5	0.2		
	Limnocalanus macrurus	17.9	1.1	3.1	<0.1
	Microcalanus pygmaeus			3.1	<0.1
	Microstella rosea			9.4	0.1
	Oithona similis	17.9	2.8	34.4	0.7
	Oncaea borealis	4.5	0.2	43.8	0.5
	Pseudocalanus minutus	26.9	31.9	56.3	26.2
	Calanoida (Unid.)	83.6	61.6	100.0	63.8
	Cyclopoida (Unid.)	6.0	0.3	21.9	0.3
Amphipoda:	*Apherusa glacialis*			3.1	0.1
Gastropoda:	*Clione limacina*			3.1	<0.1
	Limacina helicina			3.1	<0.1
Bivalvia:	Unid.	9.0	0.5	15.6	0.2
Larvacea:	*Oikopleura vanhoeffeni*	6.0	1.0	40.6	1.6
	Fritillaria borealis			18.8	0.9
Eggs:	Unid.	3.0	0.2	50.0	1.3

Table 22. Frequency of occurrence and percent by number of food items found in *M. quadricornis* stomachs, July, 1984.

Food Item		Freq Occur	% Num
Copepoda:	*Limnocalanus macrurus*	33.3	6.1
	Calanoida (Unid.)	50.0	84.8
	Cyclopoida (Unid.)	16.7	9.1

Table 23. Frequency of occurrence and percent by number of food items found in *G. tricuspis* stomachs, July and September, 1984.

Food Item		Freq Occur	% Num
Diatoms:	*Coscinodiscus sp.*	61.5	49.0
	Peridinium sp.	7.7	0.3
	Unid.	7.7	1.7
Polychaetes:	Unid.	15.4	0.6
Copepoda:	*Cyclopina sp.*	15.4	10.1
	Limnocalanus macrurus	15.4	0.8
	Microsetella rosea	7.7	0.3
	Oithona similis	7.7	0.3
	Oncaea borealis	7.7	0.3
	Pseudocalanus minutus	84.6	20.8
	Calanoida	15.4	0.8
	Harpacticoida	7.7	0.3
Cirripedia:	Unid.	38.5	1.4
Amphipoda:	*Apherusa glacialis*	7.7	0.6
Bivalvia:	Unid.	23.1	3.4
Stelleroide:	Unid.	7.7	1.1
Larvacea:	*Oikopleura vanhoeffeni*	7.7	2.8
Eggs:	Unid.	30.8	5.6

Table 24. Frequency of occurrence and percent by number of food items found in *Liparis* sp. stomachs, July, 1984.

Food Item		Freq Occur	% Num
Polychaetes:	Unid.	50.0	6.8
Copepoda:	*Oncaea borealis*	25.0	0.6
	Pseudocalanus minutus	75.0	87.0
Amphipoda:	*Gammarus sp.*	25.0	0.6
	Apherusa glacialis	25.0	4.9

Table 25. Parasites found in larval fish stomachs.

Fish Sam No	Species	Station	Parasite	Count
1507	*B. saida*	84A02	Trematoda: Hemiuridae	1
1542	*B. saida*	84A04	Trematoda: Hemiuridae	2
1608	*B. saida*	84B02	Trematoda: Hemiuridae	2
1619	*B. saida*	84B02	Trematoda: Hemiuridae	1
1621	*B. saida*	84B02	Trematoda: Hemiuridae	2
1623	*B. saida*	84B02	Trematoda: Hemiuridae	1
1627	*B. saida*	84B02	Trematoda: Hemiuridae	1
1647	*B. saida*	84B03	Trematoda: Hemiuridae	1
1660	*B. saida*	84B04	Trematoda: Hemiuridae	1